STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	1	56

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PLOTTING DATE: 2018-06-19 INTIALS: GGL
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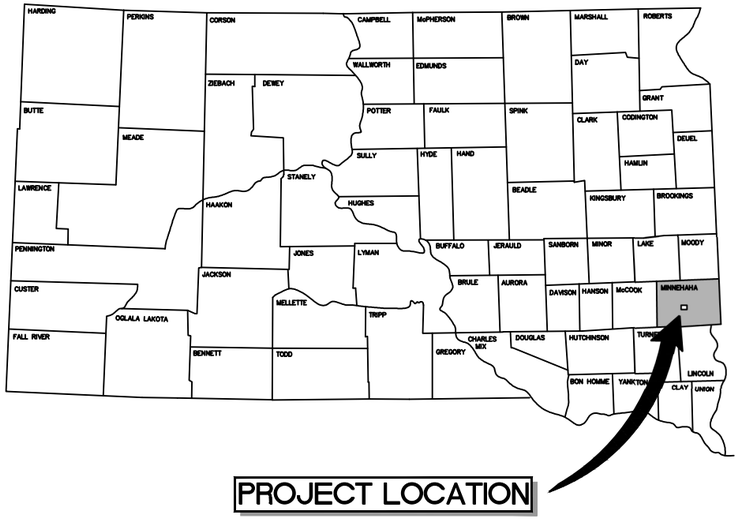


STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

PROJECT P TAPU(17)
MINNEHAHA COUNTY
CITY OF CROOKS
PCN 05MV

SHARED USE PATH

INDEX OF SHEETS

OWNER:

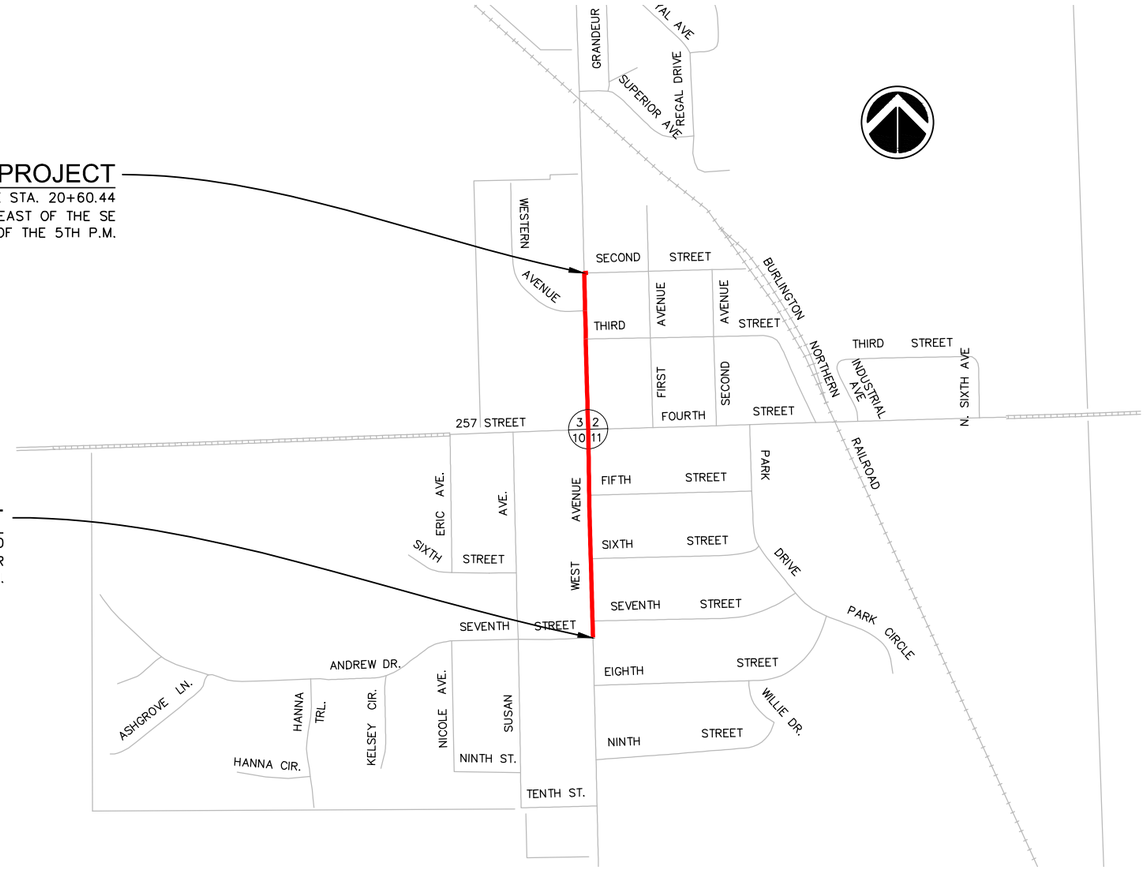
CITY OF CROOKS
TOBY SCHANTZ – FINANCE OFFICER
PO BOX 785
CROOKS, SOUTH DAKOTA 57020
605-543-5238

END PROJECT

WEST AVENUE STA. 20+60.44
APPROX. 856' NORTH AND 31' EAST OF THE SE CORNER OF SEC. 3, T102N, R50W OF THE 5TH P.M.

BEGIN PROJECT

WEST AVENUE STA. 0+00.00
APPROX. 1045' SOUTH OF THE NE CORNER OF SEC. 10, T102N, R50W OF THE 5TH P.M.



OWNER:

GABRIEL LABER, PE
DGR ENGINEERING
2909 EAST 57TH STREET SUITE #101
SIOUX FALLS, SD 57108
605-339-4157
gabriel.laber@dgr.com

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9236
GABRIEL G. LABER
SOUTH DAKOTA

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF SOUTH DAKOTA.

BY _____ DATE 7/20/18
GABRIEL G. LABER, P.E.
REG. NO. 9236

SCALES:

PLAN: 1"=40'
PROFILE: 1"=10' VERTICAL
1"=40' HORIZONTAL

VICINITY MAP - CROOKS, SD

NOTE: FOR SOUTH DAKOTA ONE CALL, THE PROJECT IS LOCATED IN SECTIONS 2-T102N-R50W, 3-T102N-R50W, & 10-T102N-R50W.

DRAWING INDICATES GENERAL UTILITY LOCATIONS ONLY. NEITHER THE CORRECTNESS OR COMPLETENESS OF LOCATIONS ARE GUARANTEED. CONTACT SOUTH DAKOTA ONE CALL PRIOR TO EXCAVATIONS. (1-800-781-7474) INFORMATION ON SECTION-TOWNSHIP-RANGE SHOWN ON LOCATION MAP ON THIS SHEET.

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	LUMP SUM	LS
100E0100	Clearing	LUMP SUM	LS
110E0300	Remove Concrete Curb and/or Gutter	12	Ft
110E0500	Remove Pipe Culvert	178	Ft
110E0510	Remove Pipe End Section	4	Each
110E1010	Remove Asphalt Concrete Pavement	659	SqYd
110E1130	Remove Concrete Driveway Pavement	23	SqYd
110E1700	Remove Silt Fence	200	Ft
110E7150	Remove Sign for Reset	3	Each
120E0600	Contractor Furnished Borrow Excavation	2,480	CuYd
230E0100	Remove and Replace Topsoil	LUMP SUM	LS
250E0020	Incidental Work, Grading	LUMP SUM	LS
260E2010	Gravel Cushion	824	Ton
260E3010	Gravel Surfacing	28	Ton
320E1200	Asphalt Concrete Composite	103.0	Ton
380E3020	6" PCC Driveway Pavement	2	SqYd
380E3520	6" PCC Approach Pavement	13	SqYd
380E4050	8" PCC Fillet Section	26	SqYd
450E0113	15" RCP Class 3, Furnish	72	Ft
450E0120	15" RCP, Install	72	Ft
450E0123	18" RCP Class 3, Furnish	88	Ft
450E0130	18" RCP, Install	88	Ft
450E0143	24" RCP Class 3, Furnish	8	Ft
450E0150	24" RCP, Install	8	Ft
450E0183	36" RCP Class 3, Furnish	76	Ft
450E0190	36" RCP, Install	76	Ft
450E0404	15" RCP Bend, Furnish	2	Each
450E0405	15" RCP Bend, Install	2	Each
450E2004	15" RCP Flared End, Furnish	3	Each
450E2005	15" RCP Flared End, Install	3	Each
450E2016	24" RCP Flared End, Furnish	1	Each
450E2017	24" RCP Flared End, Install	1	Each
450E2028	36" RCP Flared End, Furnish	1	Each
450E2029	36" RCP Flared End, Install	1	Each
450E3003	18" RCP Arch Class 3, Furnish	116	Ft
450E3010	18" RCP Arch, Install	116	Ft
450E3304	18" RCP Arch Bend, Furnish	1	Each
450E3305	18" RCP Arch Bend, Install	1	Each
450E4500	18" RCP Arch Flared End, Furnish	7	Each
450E4501	18" RCP Arch Flared End, Install	7	Each
450E8008	18" CMP to RCP Transition, Furnish	1	Each
450E8010	18" Pipe Transition, Install	1	Each
462E0100	Class M6 Concrete	9.8	CuYd
480E0100	Reinforcing Steel	1,836	Lb
632E3203	Flat Aluminum Sign, Nonremovable Copy High Intensity	28.0	SqFt
632E3205	Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity	32.7	SqFt
632E3500	Reset Sign	3	Each
633E1430	Pavement Marking Paint, 24" White	238	Ft
634E0110	Traffic Control Signs	129.0	SqFt
634E0120	Traffic Control, Miscellaneous	LUMP SUM	LS
634E0275	Type 3 Barricade	12	Each
650E0060	Type B66 Concrete Curb and Gutter	42	Ft
651E0050	5" Concrete Sidewalk	14,026	SqFt
651E0060	6" Concrete Sidewalk	1,665	SqFt
651E0160	6" Reinforced Concrete Sidewalk	666	SqFt
651E7000	Type 1 Detectable Warnings	116	SqFt
670E5200	Special Frame and Grate Assembly	2	Each
671E6007	Type A7 Manhole Frame and Lid	2	Each
671E7010	Adjust Manhole	1	Each
700E0110	Class A Riprap	34	Ton
730E0206	Type D Permanent Seed Mixture	260	Lb
731E0100	Fertilizing	256	Lb
732E0200	Fiber Mulching	1	Ton
734E0103	Type 3 Erosion Control Blanket	1,217	SqYd
734E0602	Low Flow Silt Fence	200	Ft
734E0610	Muck Silt Fence	10	CuYd
734E0620	Repair Silt Fence	50	Ft
734E0855	Interim Sediment Control at Inlet	3	Each
831E0110	Type B Drainage Fabric	53	SqYd

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

ENVIRONMENTAL COMMITMENTS

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived environmental impacts have not been adequately addressed.

Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. The environmental commitments associated with this project are as follows:

COMMITMENT E: STORM WATER

Construction activities constitute 1 acre or more of earth disturbance.

Action Taken/Required: Revised: 07-20-18

The DENR and the US Environmental Protection Agency (EPA) have issued separate general permits for the discharge of storm water runoff. The DENR permit applies to discharges on state land and the EPA permit applies to discharges on federal or reservation land. The Contractor is advised this project is regulated under the Phase II Storm Water Regulations and must receive coverage under the General Permit for Construction Activities. A Notice of Intent (NOI) will be submitted to DENR a minimum of 15 days prior to project start by the DOT Environmental Office. A letter must be received from DENR that acknowledges project coverage under this general permit before project start. The Contractor is advised that permit coverage may also be required by off-site activities, such as borrow and staging areas, which are the responsibility of the Contractor.

The Contractor shall adhere to the "Special Provision Regarding Storm Water Discharges to Waters of the State".

A major component of the storm water construction permits is development and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which is a joint effort and responsibility of the SDDOT and the Contractor. Erosion control measures and best management practices will be implemented in accordance with the SWPPP. The SWPPP is a dynamic document and is to be available on-site at all times.

Information on storm water permits and SWPPPs are available on the following websites:

SDDOT:
http://www.sddot.com/business/environmental/stormwater/Default.aspx

DENR: http://www.denr.sd.gov/des/sw/stormwater.aspx

EPA: http://cfpub.epa.gov/npdes/home.cfm?program_id=6

Contractor Certification Form:

The "Department of Environmental and Natural Resources – Contractor Certification Form" (SD EForm – 2110LDV1-ContractorCertification.pdf) shall be completed by the Contractor or their certified Erosion Control Supervisor after the award of the contract. Work may not begin on the project until this form is signed.

The form certifies under penalty of law that the Contractor understands and will comply with the terms and conditions of the Surface Water Discharge General Permit for Storm Water Discharges Associated with Construction Activities for the Project.

The online form can be found at:
http://denr.sd.gov/des/sw/eforms/E2110LDV1-ContractorCertification.pdf

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9236
GABRIEL G. LABER
7-20-18
SOUTH DAKOTA

COMMITMENT H: WASTE DISPOSAL SITE

The Contractor shall furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the Public ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

The waste disposal site(s) shall not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements shall apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the Public ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating “No Dumping Allowed”.

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) shall be incidental to the various contract items.

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require review of cultural resources impacts. This work includes, but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor shall arrange and pay for a cultural resource survey and/or records search. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor shall provide ARC with the following: a topographical map or aerial view on which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

SHPO/THPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

CONSTRUCTION LIMITS

The construction limits shall be within the right-of-way and easement areas. Material storage and vehicle and equipment traffic shall be limited to the construction limits. All paved streets adjacent to the project are to be cleaned at the end of each working day.

It shall be the responsibility of the Contractor to coordinate with the property owners relating to access to their property and any subsequent damages.

SUBMITTALS

The following documents shall be submitted by the Contractor (documentation requirements elsewhere in the contract are not waived if not listed below):

1. Construction Schedule
2. Asphalt/Concrete job mix formula
3. Certification of Compliance for Asphalt
4. Materials Certifications
5. Shop Drawings

TESTING AND INSPECTION

The Engineer and/or his representatives shall have access at all times to all parts of the job. The Contractor shall furnish the Engineer with such facilities and materials as are necessary to make whatever tests and inspections that are deemed necessary. The City will be responsible for taking the first acceptance test and a backup test if required. All subsequent tests required due to failures will be paid by the Contractor by deducting the cost from the pay request.

GENERAL

At completion of the project, all finish backfill, finish shaping, and finish grading within the project shall create a finished product of quality (both in usage and appearance), shall be done to the satisfaction of the Engineer, and shall be incidental to construction with no specific pay item.

The Contractor shall give 48-hour notification for staking. The Contractor will be responsible for all restaking and will pay for all costs of any restaking.

The general contractor shall have a superintendent or foreman on site at all times during construction for direction and supervision. A subcontractor cannot represent the general contractor.

The Contractor shall perform construction operations only during daylight hours, unless the Engineer approved additional hours.

A staging site should be acquired by the Contractor and will be the Contractor’s responsibility.

SUGGESTED SEQUENCE OF CONSTRUCTION

1) Project Signage
2) Removals
3) Paving
4) Finish Work

The above sequence is a suggestion. The Contractor may provide a different sequence. The Contractor shall provide a schedule of construction activities to be reviewed and approved by the Engineer before construction begins.

UTILITIES

The Contractor shall be aware that the existing utilities shown in the plans were surveyed prior to the design of this project and might have been relocated or replaced by a new utility facility prior to construction of this project, might be relocated or replaced by a new utility facility during the construction of this project, or might not require adjustment and may remain in its current location.

The Contractor shall contact each utility owner and confirm the status of all existing and new utility facilities. The utility contact information is provided elsewhere in the plans or bidding documents.

Field verification of depth and location of utilities will need to be done before construction of the project proceeds.

The Contractor shall coordinate the relocation of all privately owned utility facilities when necessary to accommodate the new construction.

UTILITIES (CONTINUED)

The Contractor shall safe guard all utilities and coordinate his or her efforts to coincide with utility work in order to avoid interference and to minimize inconvenience between Contractors and the public.

Any damage to utilities because of the Contractor's carelessness shall be repaired at the Contractor's expense.

Utility location as shown on the plan sheets may not be complete and accurate. The Contractor shall call for utility locations in the field prior to beginning any excavation. The Contractor shall replace any damaged utilities if marked on the plan sheets or located by utility companies.

All underground utilities should be accurately located in the field by the respective utility companies before any excavation, and notification of such utilities will be the responsibility of the Contractor. Utilities as located within these plans are shown as a convenience to the Contractor, and the Engineer will not be held responsible for any omissions or inaccuracies.

Utility	Utility Company	Contact Person	Phone
Water	City of Crooks	Ginny Beck	(605) 543-5238
Sewer	City of Crooks	Ginny Beck	(605) 543-5238
Gas	Crooks Municipal Gas	Ginny Beck	(605) 543-5238
Electrical	Xcel Energy	Derreck Martin	(605) 339-8325
Internet, Phone, Cable TV	Alliance Communications	Bob Anderson	(605) 594-8229
Internet, Phone, Cable TV	Midco	Bill Kemmis	(065) 274-8545
Internet, Phone, Cable TV	Swiftel Communications	Rick Swoboda	(605) 697-8212

Private Utilities–SD One Call – 800-781-7474

DRAINAGE

Maintenance of Drainage is the Contractor's responsibility. The Contractor shall be aware of existing drainage conditions and facilities. The Contractor shall provide for drainage during all phases of construction. Damage caused by improper temporary drainage facilities shall be repaired at the Contractor's expense and to the satisfaction of the Engineer and the Owner.

The Contractor shall assure that drainage to inlets and manholes are accomplished at the conclusion of the construction. All cost associated with adjusting drop inlet frame and grates shall be incidental to the project.

No water will be allowed to sit on the project. Water shall be pumped immediately and any saturated material removed immediately. This will prevent water infiltration under curb and gutter and sidewalks, and from causing moisture problems in different road materials. The labor and materials to do this is at the Contractor's expense, and incidental to the project.

GRADE STAKES, BENCHMARKS, AND MONUMENTS

All stakes, stones, and monuments now in place and marking lines and corners of boundaries which are likely to be affected by the work herein provided for shall be carefully preserved by the Contractor. In no case shall any excavation be made within five feet (5') of any such stake, stone or monument until they have been properly reset, witnessed, or otherwise cared for by the Engineer and permission is given to proceed with the work.

All lines, grade stakes, and benchmarks set by the Engineer in connection with the work herein provided for shall be carefully preserved by the Contractor and shall not be disturbed nor moved from the exact position and elevation as set by the Engineer. No excavated material shall be thrown over or against said stakes and, except where necessary to remove the stakes as the work progresses, all stakes shall be carefully preserved in the original position and elevation until the work has passed final inspection and been accepted. Stakes, which must be removed as the work progresses shall be so removed only upon the order of the Engineer.

All stakes, stones, monuments, and benchmarks disturbed or removed through carelessness or without proper authority will be reset at the expense of the Contractor.

TRAFFIC CONTROL

Removing, relocating, salvaging, and resetting of existing traffic control devices, including delineation, shall be the responsibility of the Contractor. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the City. Payment for removing, salvaging, installing, and/or resetting of signs shall be made using the applicable bid items.

The Contractor or designated traffic control Subcontractor shall ensure the adequacy, legibility, and reflectivity of each sign and device. Sign washing shall be considered incidental to traffic control and required as directed by the Engineer.

Signs that are reused at different times as shown on the plan sheets shall be paid for only once. Signs may have tabs or be hinged to expedite changing the message but they will be considered as one sign for payment. Non-applicable traffic control devices shall be removed and stored as near as possible to the right-of-way line. Cost of covering, removing or relocating existing signs to adequately maintain traffic shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

Traffic control signs shall be located so that existing signs are not obscured.

Contractor shall erect and maintain miscellaneous traffic control devices within project site to protect and direct local traffic through the project site during each phase of construction. Hazardous obstacles such as excavations, stockpiled materials and construction equipment shall be marked with the appropriate traffic control devices.

The Contractor shall provide temporary access routes for residences and businesses located in the construction area unless otherwise noted in the plans. Temporary routes and drives shall be considered incidental to all items of the project and therefore no separate measurement and payment shall be made.

Payment for furnishing, installing, maintaining, relocating and subsequently removing traffic control devices as required will be made at the contract unit price for "Traffic Control Signs" and "Type 3 Barricades, 8' Double Sided" and at the contract lump sum price for "Traffic Control Miscellaneous".

CHANNELIZING DEVICES

In transition and taper sections, channelizing devices shall be reflectorized drums. In tangent sections, 42" tall grabber cones may be used instead of reflectorized drums. Payment for channelizing devices shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".

PEDESTRIAN TRAFFIC

There are presently no existing through sidewalks on this project to maintain pedestrian traffic during construction activities.

The Contractor shall protect and restrict all pedestrians from work areas. Safety fence shall be installed around all work areas overnight or as needed at other locations as designated by the Engineer. Payment for all work and associated materials shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".

PERMANENT SIGNING

Permanent signing locations shall be staked in the field by the Contractor and verified by the Engineer. The Contractor shall give the Engineer a minimum of one-week advance notice to allow for verification of permanent sign locations.

The Contractor shall be responsible for contacting the South Dakota One Call to locate the utilities at the staked sign locations.

All sign legend, border and background sheeting material shall meet or exceed standards for ASTM D 4956 classified Type XI super/very high intensity sheeting and Type IV high intensity sheeting, as indicated on the Permanent Sign Table in the plans.

Sign, Sign Post, and Sign Placement Verification:
All sign post locations and positions shall be located by the Contractor and verified by the Engineer. The Contractor shall verify that the post location allows for proper placement of the signs according to the plans.

Prior to ordering signs, the Contractor shall verify dimensions, background, border, and legends of the signs.

Sign Installation Hardware:
The Contractor shall use 3/8" rust proof machine sign bolts, flat metal washers, neoprene washers (against the sign sheeting), lock washers and nuts to fasten the sign to the post.

Cost for all hardware items shall be included in the contract unit price per foot for Perforated Tube Post.

PERMANENT SIGNING (CONTINUED)

Sign Installation (Posts):
The Contractor shall provide 2"x2" Perforated Tube Post sign supports for each sign along with 2.25"x2.25" Tube Anchors and 2.5"x2.5" Tube Sleeve Stiffeners as listed in the Permanent Sign Table in these plans. Cost for all perforated tube post sign supports, tube anchors, and tube sleeve stiffeners shall be included in the contract unit price per foot for 2"x2" Perforated Tube Post.

The sign post shall be of adequate length to provide the proper height above the roadway and to extend to the top of the sign. The sign post shall not extend past the top of the sign. The Contractor shall field verify the plan post length prior to installation.

The permanent sign work includes, but is not limited to, the following:

A. Items to be removed and reset by the Contractor:
    1. Existing permanent sign.
    2. Existing fixed sign post.
B. Items to be furnished and installed by the Contractor:
    1. Fixed steel post sign supports.
    2. Flat sheet aluminum sign.

Stationing shown is approximate. The signs are flat aluminum signs with nonremovable copy. All legend and border utilizing the color black shall be vinyl or screen printed black, non-reflectorized material. All background material shall have either Super/Very High intensity or High intensity retroreflective sheeting as shown in the table. All signs shall be installed facing the intended user at a 90° angle to the direction of travel.

The Contractor shall remove and reset the signs indicated in the table in the locations shown below. The Contractor shall take care not to damage the existing sign or post. Any damage caused to the existing sign or post during removal or installation shall be repaired by the Contractor at no cost to the City.

All cost to remove and reset signs as indicated in the table shall be paid for at the contract unit price per each for "Remove Sign For Reset" and "Reset Sign.

PRIVATE SPRINKLER SYSTEM

Private sprinkler systems may be located within the construction limits. The City will notify all property owners about the expected construction and the procedures for preparing their systems for construction. If found, the Contractor shall notify the Engineer and take reasonable measures to minimize any damage to the system. The Contractor will be responsible for any damage due to the Contractor's negligence.

The Contractor shall notify and coordinate with the property owner and sprinkler Contractor when the sprinkler system can be restored. This includes, but is not limited to, the Contractor notifying the property owner prior to sidewalk installation so sleeves can be placed at locations determined by the property owner. The system should be restored before seed or sod placement and the Contractor shall make reasonable accommodations to allow for the homeowner's sprinkler Contractor to make final repairs and adjustments. No separate payment shall be made for work related to sprinkler system coordination.

CLEARING AND TREE REMOVAL

The contract lump sum price for "Clearing" will be full compensation for all removal and disposal of vegetation, trees of any size, surface objects, stumps, roots, and other protruding obstructions designated for removal and mowing as required throughout the project. Information is provided in the removal sheets; however, there are large dense tree areas in which many individual trees were not surveyed. It shall be the responsibility of the Contractor to look over the project site prior to bidding to get an accurate description of the number and size of trees and brush to be removed within the project area.

Organic material shall not be used as fill in trenches or embankment. The Contractor shall dispose of all trees, brush, stumps, roots and other remains in a legal manner. Burying or burning of debris on or adjacent to the project shall be prohibited.

At the Contractor's request, the Engineer will establish right-of-way lines and construction limit lines prior to the start of clearing operations.

Erosion control measures shall be installed and functioning prior to clearing and excavation. See erosion control plans and notes.

Some trees may require the Contractor to have the tree topped by a licensed arborist, prior to clearing and grubbing the tree, due to the close proximity of physical features to remain. All costs associated with this work is considered incidental to the contract lump sum price for "Clearing".

If trees and/or stumps to be removed are located near driveway pavements, fences or other items not being removed with this project. The Contractor shall cut these trees level with the ground, and grind the stump 12" below ground line. All costs associated with this work is considered incidental to the contract lump sum price for "Clearing".

PAVEMENT REMOVAL, DISPOSAL, AND SAWCUTTING

The Contractor shall saw a neat, vertical, full depth, straight edge to the existing pavement surfacing prior to placing new paving adjoining existing paving. All saw cutting is incidental to the respective removal bid item.

The Contractor shall exercise particular care to ensure that the adjacent surface is left intact and undamaged when removing the sawed out portion. Additional sawing required to form neat edges prior to paving will be incidental to the respective removal bid item.

Payment for the sawing, removal, and disposal of the existing street surface, sidewalk, curb & gutter, driveway & approaches, etc. will be at the unit price per each respective bid item.

TABLE OF ASPHALT CONCRETE PAVEMENT REMOVAL

Station	Quantity (SqYd)
0+32	248.0
3+93	85.0
6+54	81.0
11+21	145.0
17+57	100.0
Total:	659.0

TABLE OF CONCRETE CURB AND GUTTER REMOVAL

Station	to	Station	Quantity (Ft)
0+11.3-8.5'L		0+11.3-14.5'L	6.0
0+48.4-16.3'L		0+48.4-22.3'L	6.0
		Total:	12.0

TABLE OF CONCRETE DRIVEWAY PAVEMENT REMOVAL

Station	Quantity (SqYd)
13+24	23.0
Total:	23.0

SHRINKAGE FACTOR: Embankment +30%

UNCLASSIFIED EXCAVATION

Unclassified excavation will be incidental to the project.

Unclassified Excavation shall include all work associated with subgrade preparation including scarification and recompaction of 8 inches of material below subgrade elevation and achieving subgrade elevation. This also includes disposing of any waste material. All work associated with Unclassified Excavation shall be considered incidental to the project.

CONTRACTOR FURNISHED BORROW EXCAVATION

The Contractor shall provide a suitable site for Contractor furnished borrow excavation material. The Contractor is responsible for obtaining all required permits and clearances for the borrow site. The borrow material shall be approved by the Engineer. The plans quantity for "Contractor Furnished Borrow Excavation" as shown in the Estimate of Quantities will be the basis of payment for this item.

Restoration of the Contractor furnished borrow excavation site shall be the responsibility of the Contractor.

GRADING OPERATIONS

Gravel cushion shall be compacted to a minimum of 97% of maximum density from ASTM D698 (Standard Proctor).

During construction of the project, existing traffic control devices shall be removed and/or reset as necessary by the Contractor to safely control traffic while construction is in progress. Removed items shall be neatly stockpiled at the site.

The Contractor may perform grading and surfacing work only during daylight hours unless additional hours are approved by the Engineer.

Compaction shall be according to the Specified Density Method.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9236
GABRIEL G. LABER
7/11/18
SOUTH DAKOTA

INCIDENTAL WORK (GRADING)

The contract lump sum price for "Incidental Work, Grading" shall be full compensation for all work listed below. The following is a list of major items of Incidental Work (Grading):

A. Driveway and road access is to be maintained by the Contractor for property owners throughout the project along with access for United States Postal Carriers to mailboxes located along the project by utilizing the existing base course at the surface and/or under the existing paved surfaces. Placement and ramping of gravel shall be done so that businesses, property owners and postal carriers have access to driveways and mailboxes when the Contractor is not working in the area, during evenings, and on weekends. When authorized by the Engineer, additional gravel used to maintain access through to these locations will be paid for at the contract unit price per ton for "Gravel Surfacing".
B. Site Cleaning: All work associated with cleaning the site shall be incidental to the execution of the project. The Contractor shall execute a thorough cleaning prior to substantial completion review by the Engineer – clean sidewalks, driveways/approaches, and road pavements by brooming. Prior to Final Completion, Contractor shall remove and dispose from the project site all construction waste, unused materials, excess soil, and other debris resulting from construction activities.
C. Grade drainage swales in areas of the project when needed to maintain proper drainage during the project and during final grading.
D. Provide for concrete washout areas.
E. Grade area to drain between existing 15" RCP and new 15" RCP at the northwest corner of West Avenue and 4th Street.
F. Remove the landscaping within the R.O.W. at the northwest corner of West Avenue and 7th Street.
G. Adjust curb stops to grade including curb box and adding curb stop wrench extension.

Also, include with Incidental Work (Grading) all miscellaneous items of grading-related work for which no pay item exists.

GRAVEL CUSHION

Gravel cushion shall be placed to a thickness of 6 inches below all asphalt and concrete surfacing. Water for compaction shall be incidental to the contract unit price per ton for "Gravel Cushion".

ASPHALT CONCRETE COMPOSITE

Placement of asphalt concrete shall be by self-propelled pavers. Asphalt concrete composite shall conform to the SDDOT Specifications for Class G, Asphalt Concrete. The top lift shall conform to Class G-2 for the mineral aggregate specifications. All lower lift(s) shall conform to Class G-1 for the mineral aggregate specifications unless otherwise noted or by direction of the Engineer. The surface course shall not exceed 2" in thickness when laid and compacted.

A maximum of 20% (by weight) of Recycled Asphalt Pavement (RAP) will be allowed in the asphalt concrete composite mix. RAP stockpiles containing concrete chunks, grass, dirt, wood, metal, coal tar, or other foreign or environmentally restricted materials shall not be used. No other recycled material will be allowed.

MISCELLANEOUS CONCRETE

Concrete for inlets boxes, junction boxes, curb and gutter, valley gutters, sidewalk, driveway & approaches, and concrete drainage channel shall be Class M-6 as detailed in Section 462.

A ½" preformed expansion material shall be placed between the sidewalk and other concrete items (back of curb, driveways, existing sidewalks, etc.). Payment for this item shall be incidental and included in the unit price for the respective bid item.

8" PCC FILLET SECTIONS

Payment for "8" PCC Fillet Section" shall be based on plans quantity. If additions or reductions to the area of PCC fillet sections are ordered by the Engineer, payment will be made in accordance with the contract unit price per square yard for "8" PCC Fillet Section".

TABLE OF 8" PCC FILLET SECTION

Station	Radius (Ft)	Quantity (SqYd)
0+13.7-17.9'R	13.5	13.0
0+55.1-9.7'R	13.5	13.0
	Total:	26.

6" PCC APPROACH PAVEMENT

Field verification of existing joints may change plan removal of driveway concrete to a more logical location. These changes will be discussed and agreed upon by the Engineer prior to removal.

Preformed Expansion Joint Filler shall be placed between "6" PCC Approach Pavement" and any new or existing concrete sidewalks or concrete driveways.

TABLE OF 6" PCC APPROACH PAVEMENT

Station	Opening (Ft)	Type	Quantity (SqYd)
13+24	13.8	A	13.0
		Total:	13.0

CONCRETE CURB & GUTTER

Weakened plane joints shall be constructed at 10 foot intervals. The joints shall be constructed to a minimum depth of one inch by scoring with a tool, which will leave the corners rounded and provide free movement of concrete at the joint.

All cost associated with installing the concrete curb and gutter as specified in the detail shall be included in the contract unit price per foot for "Type B66 Concrete Curb and Gutter".

New curb and gutter will be tied to the old curb with 2 – 18 inch tie bars. All epoxy and drilling and other costs involved to install the tie bars are incidental to the "Type B66 Concrete Curb and Gutter" bid item.

TABLE OF TYPE B66 CONCRETE CURB AND GUTTER

Station	to	Station	Quantity (Ft)
0+11.3-14.5'L		0+13.8-5.8'R	21.0
0+48.4-22.3'L		0+51.3-1.4'L	21.0
		Total	42.0

CONCRETE CURING

All concrete shall be cured in accordance with section 380.3 M.2, except as modified in this note. All concrete shall be cured with a white pigmented linseed oil base emulsion compound when cured using the Impervious Membrane Method.

Apply liquid curing compound in a fine spray to form a continuous, uniform solid white opaque coverage (equal to a white sheet of typing paper) on the horizontal surface and vertical edges of pavement, curbs and back of curbs immediately after surface moisture has disappeared, but no later than 30 minutes after finishing. Concrete edges exposed by the removal of forms shall also be cured. Apply the curing compound in 2 equal applications, in opposing directions, to ensure a uniform coverage. With the approval of the Engineer, the timing of cure application may be adjusted due to varying weather conditions and concrete mix properties to ensure acceptable macrotexture is achieved.

Failure to comply with the provisions may result in a price adjustment or rejection of the concrete.

CONCRETE SIDEWALK

Concrete Sidewalk shall be constructed in accordance with Section 651 and will be constructed to the widths shown in the plans unless directed otherwise by the Engineer.

Provide a ½ inch Preformed Expansion Joint Filler when sidewalk is adjacent to other concrete and every 150' along the sidewalk. All expansion joints shall be flush with adjacent hard surfacing. If deflections greater than ¼" occur across any joint, the panel shall be removed and replaced or joint shall be ground flush. This will be at the Owner's discretion and at the Contractor's expense.

Six (6) inches of gravel cushion shall be placed beneath the sidewalk.

All hard surfacing shall comply with ADA standards. No cross-slope may exceed 2%. No longitudinal slope may exceed 5% unless shown in the plans.

Payment for furnishing and installing the joint filler shall be incidental to the contract unit price per square foot for 5" and 6" Concrete Sidewalk.

Reinforced concrete sidewalk shall be reinforced with #4 reinforcing steel at 12" OC both ways. All reinforcing steel shall conform to ASTM A615 Grade 60. Reinforcing steel is incidental to the contract unit price per square foot for "6" Reinforced Concrete Sidewalk".

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
9236
GABRIEL G.
LABER
7/11/18
SOUTH DAKOTA

TABLE OF 5" CONCRETE SIDEWALK

Station	to	Station	Quantity (SqFt)
0+62-5'L		0+62-22'L	68
0+64		3+75	3,110
4+11		5+50	1,390
5+50		6+37	873
6+71		7+91	1,199
8+06		10+75	2,687
10+75		10+96	214
11+52		12+91	836
13+04		13+17	76
13+31		13+98	401
14+12		15+50	828
15+50		17+36	1,117
17+77		19+19	850
19+33		19+81	286
20+38		20+60	91
		Total	14,026

TABLE OF 6" CONCRETE SIDEWALK

Station	to	Station	Quantity (SqFt)
0+00		0+11	179
0+53		0+64	118
3+75		4+11	360
6+37		6+71	337
7+91		8+06	154
10+96		11+02	55
11+45		11+52	38
12+91		13+04	75
13+17		13+31	86
13+98		14+12	88
17+36		17+42	32
17+72		17+77	31
19+19		19+33	85
19+81		19+84	16
20+35		20+38	11
		Total	1665.

TABLE OF 6" REINFORCED CONCRETE SIDEWALK

Station	to	Station	Quantity (SqFt)
11+02		11+45	477
20+35		20+38	189
		Total	666

TYPE 1 DETECTABLE WARNINGS

Detectable warnings shall be in compliance with the Americans with Disabilities Act regulations. The detectable warnings shall be installed according to the manufacturer's installation instructions.

A concrete thickness equal to the adjacent concrete sidewalk thickness and 6 inches of gravel cushion material shall be placed below the Type 1 Detectable Warnings. When concrete is placed below the detectable warnings then the concrete thickness shall be transitioned at the rate of 1" per foot to match the adjacent concrete sidewalk thickness.

The detectable warnings shall be a brick red color for application in concrete curb ramps. Cast iron plates may be a natural patina (weathered steel).

When Type 1 Detectable Warnings are specified, the Contractor shall furnish and install only one of the products listed in the Type 1 Detectable Warnings table.

Type 1 Detectable Warnings

Product	Manufacturer
Detectable Warning Plate Cast Iron Plate	Neenah Foundry Company Neenah, WI 800-558-5075 http://www.neenahfoundry.com/
Detectable Warning Plate Cast Iron Plate	Deeter Foundry Lincoln, NE 800-234-7466 http://www.deeter.com/
Detectable Warning Plate Cast Iron Plate(No Coating)	East Jordan Iron Works, Inc. 301 Spring Street East Jordan, MI 49727 800-626-4653 http://www.ejiw.com

TABLE OF TYPE 1 DETECTABLE WARNINGS

Station	Quantity (SqFt)
0+10.1	20
0+56.3	20
10+97.6	20
11+50.6	12
17+37.4	12
17+75.8	12
19+82.2	12
20+36.3	8
Total	116

GRAVEL SURFACING

Gravel in gravel driveways will be a 6 inch compacted depth. The bid item for "Gravel Surfacing" is for all work associated to furnish and install the gravel to the depth and density specified in the specifications.

STORM SEWER

Reinforced concrete pipe may be bell and spigot. All reinforced concrete pipe shall be Class 3. The pipe sections shall be adjoined such that the ends are fully entered and the inner surfaces are reasonably flush and even.

Lift holes in the reinforced concrete pipe shall be plugged with grout.

Watertight joints are required for reinforced concrete pipe, drop inlets, manholes, and junction boxes where storm sewers run parallel to and within 10 feet horizontally from existing or proposed water mains.

Watertight joints are required where reinforced concrete pipes, drop inlets, manholes, or junction boxes cross water mains and are separated a distance of 18 inches or less, above or below, the water main.

If watertight joints are required then the watertight joints shall extend for a distance of 10 feet beyond the water main. This measurement shall be from the sealed concrete joint to the outer most surface of the water main.

Watertight joint seals shall conform to the following requirements:

1. Reinforced Concrete Pipe (Circular): Gasketed pipe shall conform to the requirements of ASTM C443 and the gasket shall be in conformance with Section 990 of the Specifications. Non-gasketed concrete pipe shall be sealed with a mastic joint seal conforming to the requirements of ASTM C990 and encased with a minimum 2' wide by 6" thick M6 concrete collar reinforced with 6x6 W2.9 x W2.9 wire mesh.

2. Reinforced Concrete Pipe (Arch): Gasketed pipe shall conform to the requirements of ASTM C443 and the gasket shall be in conformance with Section 990 of the Specifications. Non-gasketed concrete pipe joints shall be sealed with a hydrophilic flexible water stop seal and wrapped with a 1-foot wide strip of fabric above the cradle. The fabric shall conform to the requirements of Section 831 of the Specifications for Type A Drainage Fabric. The hydrophilic flexible water stop shall be from the list below.

3. Drop Inlets, Manholes, and Junction Boxes: Joints shall be sealed with one of the following methods:

   A. A flexible strip seal placed in the joints conforming to the requirements of ASTM C990 and the perimeter encased with a minimum 2' wide by 6" thick M6 concrete collar reinforced with 6x6 W2.9 x W2.9 wire mesh.

   B. A hydrophilic flexible water stop seal placed in the joints and a 1-foot wide strip of fabric wrapped around the perimeter of the pipe. The fabric shall conform to the requirements of Section 831 of the Specifications for Type A Drainage Fabric. The hydrophilic flexible water stop shall be from the list below.

   C. A self-adhesive external joint seal wrap. The seal wrap shall be from the list below.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9236
GABRIEL G. LABER
7/11/18
SOUTH DAKOTA

STORM SEWER (CONTINUED)

Approved List of Self-adhesive Joint Wrap

Product	Manufacturer
Mar Mac Seal Wrap	Mar Mac Construction Products McBee, SC 843-335-5909 www.marmac.com
ConWrap CS-217	Concrete Sealants, Inc. Tipp City, OH 800-332-7325 conseal.com

Approved List of Hydrophilic Flexible Water Stop Seal:

Product	Manufacturer
Waterstop RX	Cetco Hoffman Estates, IL 800-527-9948 www.cetco.com
Conseal CS-231	Concrete Sealants, Inc. Tipp City, OH 800-332-7325 conseal.com

Gaskets and seals (mastic, waterstop, and seal wraps) shall be installed in accordance with the manufacturer's recommendations.

The cost for furnishing and installing all gaskets, mastic joint seal, water stop seal, seal wrap, concrete collars, and for plugging the lift holes shall be incidental to the contract unit price per foot for the corresponding pipe bid item.

CONCRETE PIPE CONNECTIONS

Pipe connections to existing pipes, manholes, junction boxes, and drop inlets shall be done by breaking a hole into the existing structure and inserting the pipe. A concrete collar shall then be poured around the pipe in the area of the connection.

When it is not possible to use a normal pipe joint (male-female ends), connections to existing pipe shall be made by placing a 2' wide by 6" thick M6 concrete collar around the outside of the connection. The concrete collar shall be reinforced with 6x6 W2.9 x W2.9 wire mesh.

All costs for constructing the concrete collars including materials and labor shall be paid at the contract unit price if a bid item is included otherwise it will be considered incidental to the contract unit price per foot for the corresponding pipe bid item.

CATCH BASINS AND JUNCTION BOXES

Storm sewer catch basins and junction boxes shall be paid for at the contract unit prices for "Class M-6 Concrete" and "Reinforcing Steel" as shown in the tables below. Plans quantity will be the basis for payment unless changes are ordered by the Engineer.

If additions or reductions to the number of catch basins or junctions boxes are ordered by the Engineer, payment for the components required to construct the structures will be made at the contract unit prices for the components of the structures.

TABLE OF CATCH BASINS AND QUANTITIES

Station	L/R	Catch Basin Type	Concrete (CuYd)	Reinforcing Steel (Lb)	Special Frame and Grate/Lid Type
11+60.5	5.0'R	2'x2'	0.45	16	Neenah 3402-E
19+34.4	7.0'L	2'x2'	0.48	16	Neenah 3402-E
		Totals:	0.93	32	

*Deeter 2455 frame and grate is an approved equal.

TABLE OF JUNCTION BOXES AND QUANTITIES

Station	L/R	Junction Box Type	Concrete (CuYd)	Reinforcing Steel (Lb)	Frame and Grate/Lid Type
1+60.7	13.0'L	5'x5'	4.46	890	Type A7
2+13.8	12.6'L	5'x5'	4.38	914	Type A7
		Totals:	8.84	1,804	

REINFORCING STEEL

Some field bending and cutting of the reinforcing steel may be required. The minimum lap for spliced bars shall be 24 bar diameters. Payment shall be based on contract unit price per pound for "Reinforcing Steel" and with no extra payment for field bending and cutting.

SPECIAL FRAME AND GRATE ASSEMBLY

The following frame and grate assemblies shall be used for the inlets and junction boxes as described in the table below:

Location	Type	Special Frame and Grate Assembly
11+60.5-5.0'R	2'x2' Catch Basin	Neenah R-3402-E/Deeter 2455
19+34.4-7.0'L	2'x2' Catch Basin	Neenah R-3402-E/Deeter 2455

ADJUSTMENT OF MANHOLES

The Contractor shall adjust manholes to the extent necessary on this project. Adjusting the manholes may consist of removing the upper course of brick or removing the concrete walls, replacing the removed materials with brick or Class M6 concrete, placing adjusting rings if necessary, and resetting the manhole frame and lid. The elevation of the lid shall be set at the same elevation of the adjacent new pavement or surrounding ground.

All manhole frames, lids, and rings that are cracked or broken due to carelessness of the Contractor shall be replaced with new manhole frames, lids, and rings that conform with the Specifications at the Contractor's expense. Manholes shall be adjusted to the satisfaction of the Engineer. All costs involved in adjusting the manholes shall be incidental to the contract unit price per each for "Adjust Manhole".

The Engineer may direct adjustment of manholes that were not included in these plans. Payment for adjusting manholes that were not included in the plans will be at the contract unit price per each for "Adjust Manhole".

TABLE OF ADJUST MANHOLES

Revised 07-20-18

Station	L/R	Type of Adjustment
19+53	L	Existing Sanitary Sewer Manhole up 0.75' (field verify)

REMOVE AND REPLACE TOPSOIL

Prior to starting construction operations, a sufficient volume of topsoil free from gravel, rocks, and other foreign material and suitable for growing grass, shall be removed from the construction limits to cover the disturbed areas and shall conform to Section 230.3 of the Specifications. If the Contractor does not salvage enough topsoil and needs additional topsoil, the Contractor will be required to furnish topsoil from an Engineer approved source which shall be incidental to the bid item "Remove and Replace Topsoil".

Topsoil shall be placed over all disturbed areas to a depth of 6 inches unless otherwise specified by the Engineer. An estimated quantity of 700 cubic yards of topsoil will be needed to cover the disturbed area at the specified depth. The placement of the topsoil shall be completed within 5 days of final grading. Soil stabilization shall be in accordance with the SWPPP.

The size and type of equipment utilized on this portion of the work shall be commensurate with the work to be accomplished.

Care shall be taken in working around existing utilities, trees, shrubs, and private improvements so to avoid damage.

The final surface finish shall be left in a condition such that all terraces will be suitable for seeding.

Payment for salvaging, stockpiling, removing topsoil from stockpiles, hauling, furnishing, depositing, spreading and finishing topsoil and terrace grading will be the plans quantity at the contract lump sum price for"Remove and Replace Topsoil" unless changes from the plan shown disturbed areas are ordered by the Engineer.

PAVEMENT MARKING PAINT

The pavement marking material shall be as defined in Sections 980 and 981 of the Specifications. All materials shall be applied as per manufacturer's recommendations.

Revised 06-28-18

TABLE OF REMOVE AND RESET SIGN

Station	L/R	Sign Type	Quantity (Each)
10+97	3.6'L	Stop Sign	1
18+05	1.3'R	Speed Limit	1
20+46	1.5'L	Stop Sign	1
		Total:	3

PERMITS

The Contractor is required to obtain a general discharge permit when a discharge from dewatering, disinfection, or pressure testing could reach waters of the state. To obtain information on the general discharge permit, contact the DENR, at (605) 773-3351.

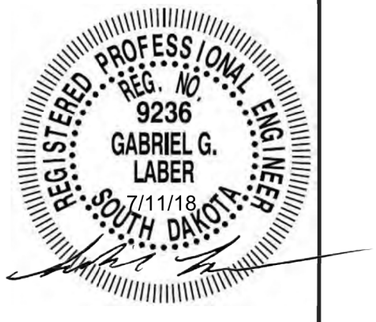
Construction operations that result in the disturbance of one (1) acre or more of the total land area are required to obtain a General Surface Water Discharge Permit for Storm Water Discharges resulting from Construction Activity. For more information, contact DENR at (605) 773-3351 or 1-800-SD-STORM (1-800-737-8676). This permit for storm water discharges has been obtained by the City and is included under the permits section of the bid documents. The Contractor shall abide by the provisions of this permit as well as the Storm Water Pollution Prevention Plan that has been prepared for this project.

QUANTITIES

The Contractor shall be aware that all quantities are estimates to be used for bidding purposes, and the Contractor will be paid only for the units of work actually completed, except for items where the plan quantity is specified as the basis of payment. This is particularly important for those bid items which are difficult to estimate precisely.

The items listed below will be paid for based on the plan shown quantities. No field measurement will be made for these items. However, if a change directed by the City or Engineer becomes necessary during construction that affects these quantities, the area in which the change was made will be measured and the quantity adjusted accordingly.

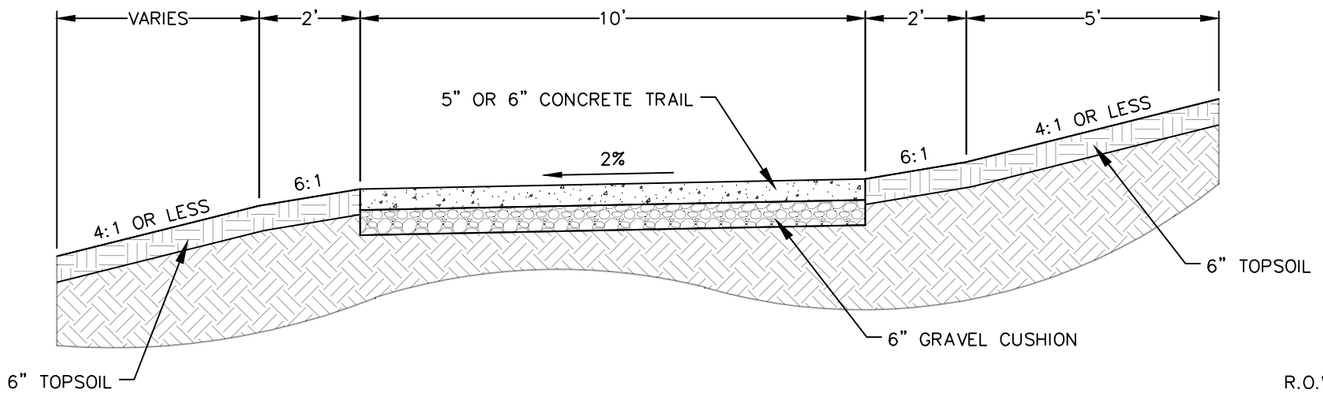
A. Concrete Fillets
B. Permanent Seed Mixture
C. Fertilizing
D. Fiber Mulching
E. Class M6 Concrete – Inlets and Junction Boxes
F. Reinforcing Steel



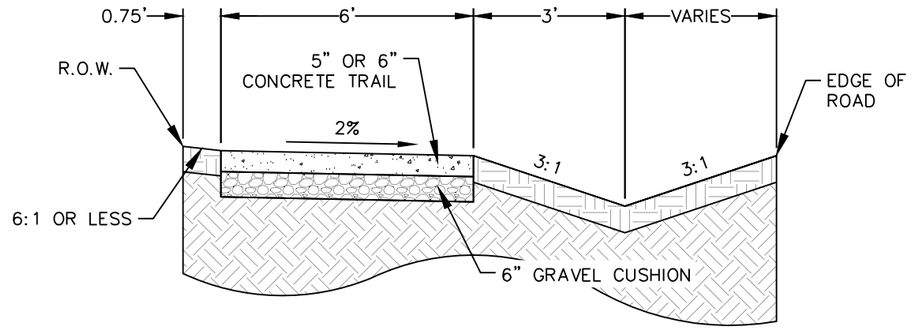
TYPICAL SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	10	56

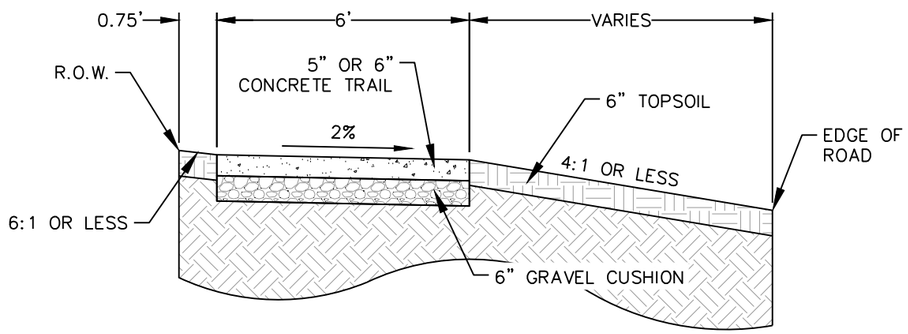
FILE: 667021 – Typical Sections.dwg
PLOTTING DATE: 2018-06-01 INTIALS: GGL
REVISION DATE:



TYPICAL SECTION
STA. 0+64 TO STA. 10+96



TYPICAL SECTION
STA. 11+52 TO STA. 12+60
STA. 13+31 TO STA. 13+95



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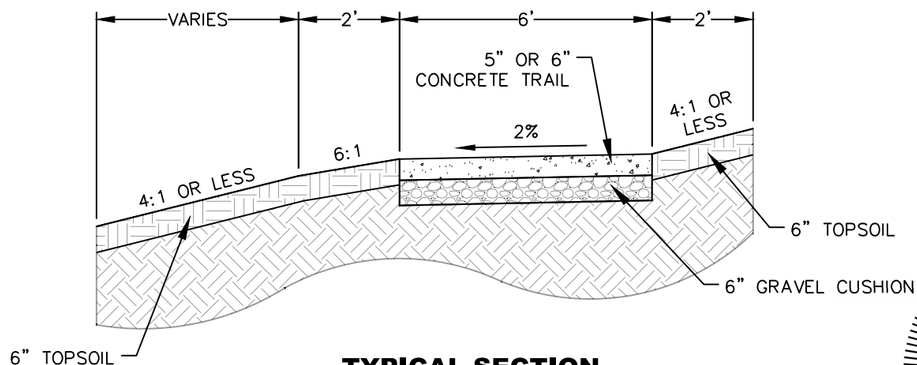


TYPICAL SECTION
STA. 14+50 TO STA. 19+75

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9236
GABRIEL G. LABER
7/11/18
SOUTH DAKOTA

HORIZONTAL ALIGNMENT

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	11	56

FILE: 667021 – Title Page.dwg
PLOTTING DATE: 2018–06–01 INTIALS: GGL
REVISION DATE:

CL TRAIL

PI Station	Northing	Easting	Distance	Direction
0+00.00	15,866,325.1850'	2,219,420.9332'		
			11.06'	N1°52'57.87"W
0+11.06	15,866,336.2398'	2,219,420.5698'		
			44.52'	N9°33'24.03"E
0+55.58	15,866,380.1452'	2,219,427.9617'		
			102.23'	N1°18'03.38"W
1+57.81	15,866,482.3463'	2,219,425.6408'		
			38.57'	N1°43'34.64"W
1+96.38	15,866,520.8992'	2,219,424.4789'		
			29.05'	N2°24'22.51"W
2+25.44	15,866,549.9282'	2,219,423.2590'		
			68.87'	N1°21'57.28"W
2+94.30	15,866,618.7750'	2,219,421.6174'		
			74.40'	N1°10'19.41"W
3+68.71	15,866,693.1627'	2,219,420.0955'		
			7.48'	N2°17'44.46"W
3+76.19	15,866,700.6404'	2,219,419.7957'		
			33.64'	N2°18'10.63"W
4+09.83	15,866,734.2558'	2,219,418.4439'		
			226.96'	N1°24'30.50"W
6+36.79	15,866,961.1451'	2,219,412.8652'		
			32.86'	N1°25'18.39"W
6+69.65	15,866,993.9901'	2,219,412.0500'		
			113.23'	N1°19'17.23"W
7+82.88	15,867,107.1947'	2,219,409.4387'		
			33.62'	N0°21'41.15"E
8+16.50	15,867,140.8177'	2,219,409.6508'		
			267.67'	N1°41'55.21"W
10+84.18	15,867,408.3734'	2,219,401.7161'		
			14.71'	N1°39'56.70"W

CL TRAIL (continued)

PI Station	Northing	Easting	Distance	Direction
10+98.89	15,867,423.0791'	2,219,401.2885'		
			50.46'	N4°17'52.48"E
11+49.35	15,867,473.3944'	2,219,405.0698'		
			270.67'	N1°48'38.83"W
14+20.02	15,867,743.9285'	2,219,396.5170'		
			30.20'	N5°12'10.67"E
14+50.22	15,867,774.0053'	2,219,399.2558'		
			119.35'	N1°38'12.64"W
15+69.57	15,867,893.3103'	2,219,395.8465'		
			57.36'	N0°59'51.45"W
16+26.93	15,867,950.6630'	2,219,394.8478'		
			88.26'	N1°56'34.49"W
17+15.19	15,868,038.8722'	2,219,391.8554'		
			77.67'	N1°54'17.81"W
17+92.86	15,868,116.4991'	2,219,389.2736'		
			125.47'	N0°54'02.56"W
19+18.33	15,868,241.9515'	2,219,387.3012'		
			15.01'	N6°53'52.62"W
19+33.34	15,868,256.8514'	2,219,385.4987'		
			44.54'	N1°49'34.64"W
19+77.88	15,868,301.3692'	2,219,384.0792'		
			5.62'	N88°52'33.08"E
19+83.50	15,868,301.4795'	2,219,389.7022'		
			51.27'	N89°19'18.23"E
20+34.77	15,868,302.0865'	2,219,440.9711'		
			13.48'	N88°46'39.20"E
20+48.25	15,868,302.3740'	2,219,454.4453'		
			11.94'	N89°08'33.99"E
20+60.20	15,868,302.5527'	2,219,466.3879'		

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9236
GABRIEL G. LABER
7/11/18
SOUTH DAKOTA

The coordinates shown on this sheet are based on the UTM Coordinate System, Zone 14, Central Meridian 99d W. (NAD 83)

CONTROL DATA

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	12	56

FILE: 667021 – Title Page.dwg
PLOTTING DATE: 2018–06–01 INITIALS: GGL
REVISION DATE:

HORIZONTAL AND VERTICAL CONTROL POINTS

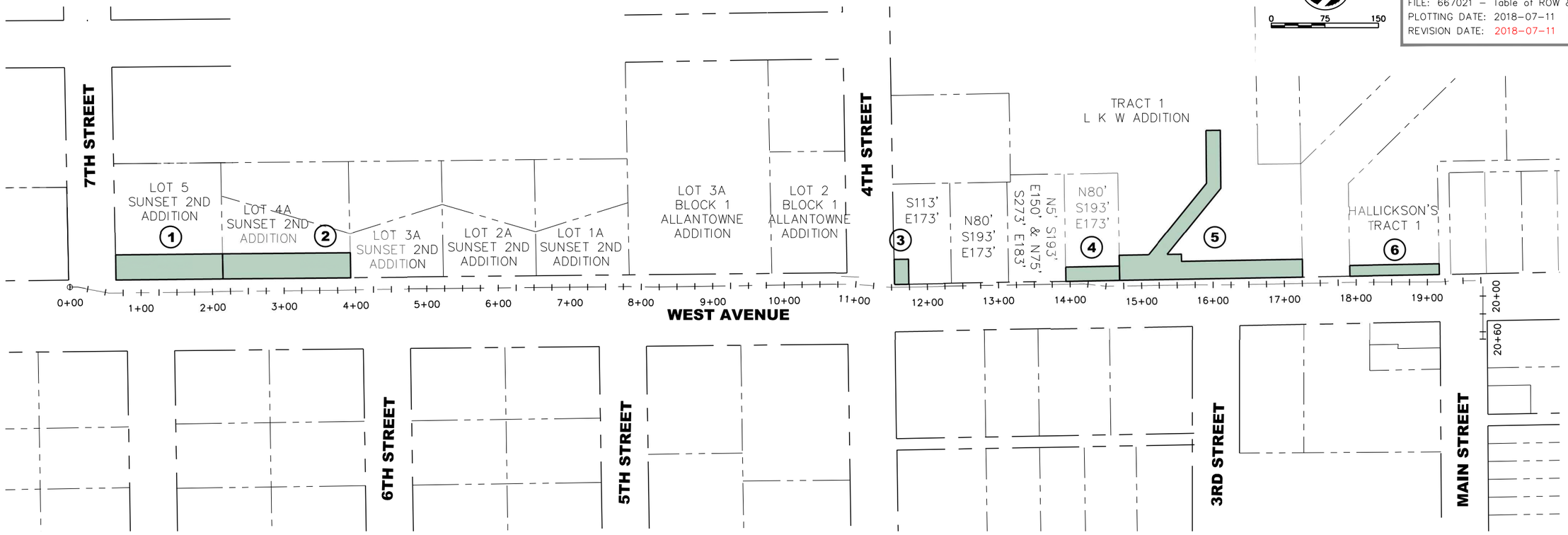
POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP #11	6+53	16' L	PK Nail 110' S of 5th Street, W side of West Ave	15866977.428	2219396.333	1573.53
CP #12	7+83	17' L	IP W Side of West Ave at 5th St	15867107.279	2219392.917	1573.23
CP #13	11+24	32' R	IP Center of West Ave and 4th St Intersection	15867446.165	2219435.026	1580.31
CP #14	11+48	67' R	IP NE Corner of West Ave and 4th St	15867466.892	2219471.428	1581.24
CP #15	14+69	8' L	IP 125' S of 3rd Street, W side of West Ave	15867792.912	2219390.793	1576.00
CP #16	17+25	8' L	IP SW Corner of West Ave and Western Dr	15868048.874	2219383.47	1578.54
CP #17	17+26	57' R	IP E Side of West Ave at Western Dr	15868051.696	2219448.651	1581.66
CP #18	20+34	6' L	IP NE Corner of West Ave and Main St	15868308.205	2219440.564	1585.07

The coordinates shown on this sheet are based on the UTM Coordinate System, Zone 14, Central Meridian 99d W. (NAD 83)
The elevations shown on this sheet are based on NAVD 88.

TABLE OF ROW AND EASEMENTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	13	56

FILE: 667021 – Table of ROW & Easements.dwg
PLOTTING DATE: 2018–07–11 INITIALS: GGL
REVISION DATE: 2018–07–11



LEGEND

(#) PARCEL NO.

TEMPORARY CONSTRUCTION EASEMENT

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9236
GABRIEL G. LABER
7/11/18
SOUTH DAKOTA

TABLE OF RIGHT OF WAY AND EASEMENTS

PARCEL NO.	STATION TO STATION	SIDE	TYPE	PURPOSE	AREA REQ. SQ. FT.	OWNER	DESCRIPTION
1	0+65.00–2+15.10	LT	TEMPORARY	CONSTRUCTION EASEMENT	5,238 SF	GLD ADVENTURES LLC	LOT 5 OF SUNSET 2ND ADDITION
2	2+15.10–3+93.68	LT	TEMPORARY	CONSTRUCTION EASEMENT	6,252 SF	DENNIS D & CHARLOTTE M TILDEN	LOT 4A OF SUNSET 2ND ADDITION
3	11+54.21–11+74.21	LT	TEMPORARY	CONSTRUCTION EASEMENT	700 SF	MELISSA A & BRUCE FIKSDAL	S113' E173' $SE\frac{1}{4}$ $SE\frac{1}{4}$ OF SECTION 3–T102N–R50W
4	13+94.21–14+69.40	LT	TEMPORARY	CONSTRUCTION EASEMENT	1,499 SF	KARL S HANSON	N75' S348' E183' $SE\frac{1}{4}$ OF SECTION 3–T102N–R50W
5	14+69.40–17+25.56	LT	TEMPORARY	CONSTRUCTION EASEMENT	11,301 SF	RUSSELL & MARY STAPERT	TRACT 1 OF L K W ADDITION
6	17+91.46–19+16.75	LT	TEMPORARY	CONSTRUCTION EASEMENT	1,882 SF	J & M COMPONENTS	S98' & N27.9' S125.9' E129' OF HALLICKSON'S TRACT 1 $S\frac{1}{2}$ $SE\frac{1}{4}$ OF SECTION 3–T102N–R50W

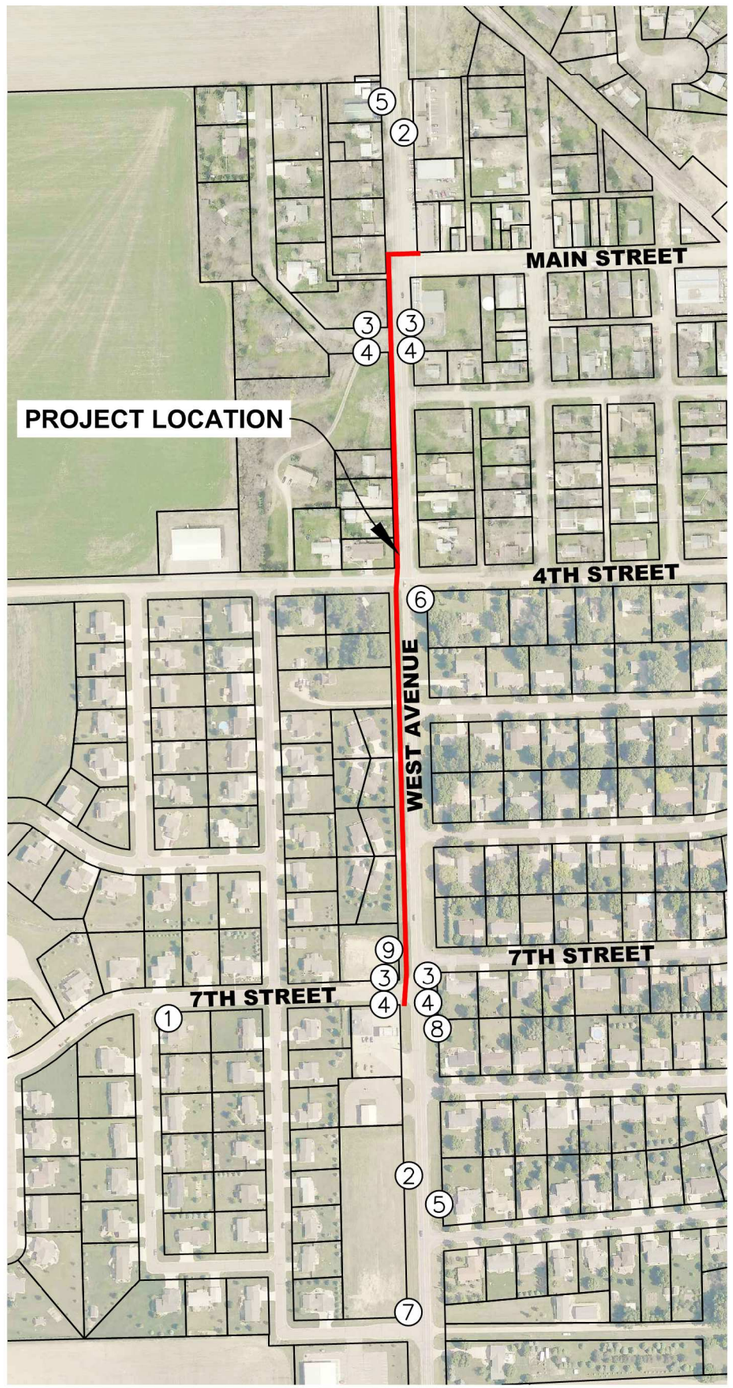
TRAFFIC CONTROL

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	14	56

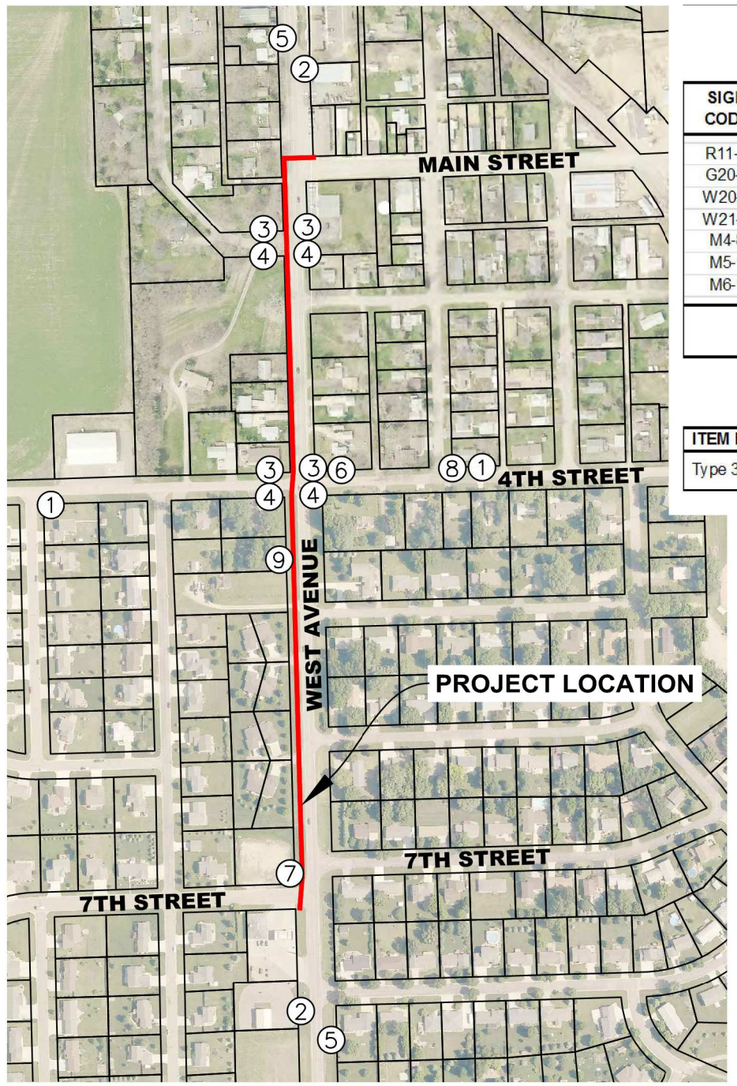
FILE: 667021 – Traffic Control.dwg
PLOTTING DATE: 2018–06–29 INITIALS: GGL
REVISION DATE: 06–28–2018

0 200 400

7TH STREET CLOSED



4TH STREET CLOSED



ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R11-2	ROAD CLOSED	4	48" x 30"	10	40
G20-2	END ROAD WORK	2	36" x 18"	4.5	9
W20-3	ROAD CLOSED AHEAD	2	48" x 48"	16	32
W21-5	SHOULDER WORK	2	48" x 48"	16	32
M4-8	DETOUR	4	24" x 12"	2	8
M5-1	ADVANCE TURN ARROW 90° (L or R)	2	21" x 15"	2	4
M6-1	DIRECTION ARROW - Horizontal Single Head (L or R)	2	21" x 15"	2	4
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			129

TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Double Sided	12 Each

① ROAD CLOSED AHEAD — W20–3 (48"x48")

② END ROAD WORK — G20–2 (36"x18")

⑤ SHOULDER WORK — W21–5 (48"x48")

③ ROAD CLOSED — R11–2 (48"x30")

④ 3 EA – TYPE III BARRICADE

⑥ DETOUR M4–8, M6–1

⑦ DETOUR M4–8, M6–1

⑧ DETOUR M4–8, M5–1

⑨ DETOUR M4–8, M5–1

NOTES:

DRIVEWAY, EMERGENCY VEHICLE, AND MAIL DELIVERY ACCESS FOR PROPERTIES ALONG THE PROJECT ARE TO BE MAINTAINED BY THE CONTRACTOR (INCIDENTAL TO PROJECT).

CONTRACTOR SHALL USE CONES, BARRELS, BARRICADES, ETC. TO CLOSE OFF WORK AREAS AND ENTRANCES AS DIRECTED BY THE ENGINEER (TRAFFIC CONTROL MISC.).

WHEN CONTRACTOR IS NOT DIRECTLY WORKING IN THE INTERSECTIONS, BARRICADES SHALL BE TEMPORARILY MOVED TO ALLOW TRAFFIC TO TRAVEL THROUGH.

CLOSURES AT 4TH STREET AND 7TH STREET SHALL BE SEQUENCED SO THAT BOTH INTERSECTIONS ARE NOT CLOSED AT THE SAME TIME.

ACCESS TO WESTERN DRIVE MUST BE MAINTAINED THROUGHOUT THE PROJECT. CONTRACTOR TO BLOCK OFF NO MORE THAN HALF OF THE ROAD AT A TIME.

OPEN EXCAVATIONS SHALL BE COVERED OR BARRICADED.

THE EXACT LOCATION OF ALL TRAFFIC CONTROL DEVICES SHALL BE DETERMINED AT THE SITE.

AT NO TIME SHALL CONTRACTOR PARK VEHICLES OR EQUIPMENT ON PRIVATE PROPERTY.

AT NO TIME SHALL CONTRACTOR BLOCK ENTRANCES ON THIS PROJECT WITH MATERIAL STOCKPILES.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9236
GABRIEL G. LABER
7/11/18
SOUTH DAKOTA

LEGEND OF SYMBOLS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	15	56

FILE: 667021 – Title Page.dwg
PLOTTING DATE: 2018–06–01 INITIALS: GGL
REVISION DATE:

8"PVC	WATER MAIN, SIZE, AND TYPE	UE	UNDERGROUND ELECTRIC		PROPERTY LINE
W	WATER MANHOLE	OHE	OVERHEAD ELECTRIC		RIGHT OF WAY LINE
	WATER SHUT OFF		GUY WIRE		PROPERTY PIN
WTR/TR	WATER TRACER WIRE PEDESTAL		GUY POLE		BENCHMARK
WV	WATER VALVE		POWER POLE		CONTROL POINT
	FIRE HYDRANT		POWER POLE WITH LIGHT	X	FENCE
	SPRINKLER HEAD		POWER POLE WITH TRANSFORMER		FENCE POST
	CONTROL VALVE		LIGHT POLE		CONIFEROUS TREE
8"PVC	SANITARY SEWER MAIN, SIZE, AND TYPE		TRAFFIC SIGNAL POLE		DECIDUOUS TREE
CO	SANITARY SEWER CLEAN OUT	E	ELECTRIC BOX		STUMP
S	SANITARY SEWER MANHOLE	E	ELECTRICAL MANHOLE		TREE LINE
	STORM SEWER	EM	ELECTRICAL METER	FP	FLAG POLE
D	STORM SEWER MANHOLE	E/VLT	ELECTRICAL VAULT		SIGN
GAS	UNDERGROUND GAS		FLOOD LIGHT		MAILBOX
GV	GAS VALVE	FO	FIBER OPTIC		BOULDER
T	TELEPHONE PEDESTAL	FO	FIBER OPTIC PEDESTAL		RIP RAP
THH	TELEPHONE HAND HOLE	FO/HH	FIBER OPTIC HAND HOLE		WINDMILL
T/VLT	TELEPHONE VAULT	FO/VLT	FIBER OPTIC VAULT		
TV	UNDERGROUND TELEVISION				

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9236
GABRIEL G. LABER
7/11/18
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	16	56

FILE: 667021 – Plan and Profile.dwg
PLOTTING DATE: 2018-06-01 INTIALS: GGL
REVISION DATE:

6" CONCRETE SIDEWALK
STA.0+00-CL TO STA.0+11-CL – 179 SF
STA.0+53-CL TO STA.0+64-CL – 118 SF
STA.3+75-CL TO STA.4+11-CL – 360 SF

5" CONCRETE SIDEWALK
STA.0+62-5'L TO STA.0+62-22'L – 68 SF
STA.0+64-CL TO STA.3+75-CL – 3,110 SF
STA.4+11-CL TO STA.5+50-CL – 1,390 SF

TYPE 1 DETECTABLE WARNINGS
STA.0+10.1-CL – 20 SF
STA.0+56.3-CL – 20 SF

TYPE B66 CONCRETE CURB AND GUTTER
STA.0+11.3-14.5'L TO STA.0+13.8-5.8'R – 21 FT
STA.0+48.4-22.3'L TO STA.0+51.3-1.4'L – 21 FT

8" PCC FILLET SECTION
STA.0+13.7-17.9'R – 13 SY
STA.0+55.1-9.7'R – 13 SY

18" RCP CLASS 3
STA.0+69.8-11.5'L TO STA.1+58.1-12.8'L – 88 FT

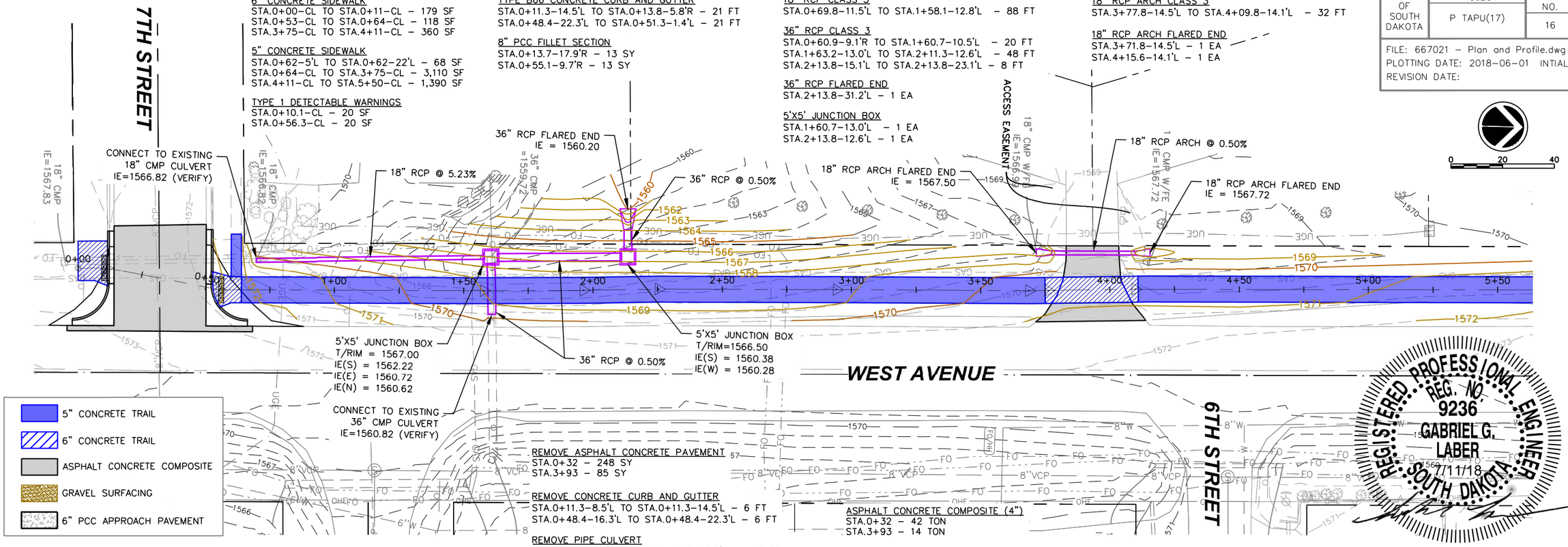
36" RCP CLASS 3
STA.0+60.9-9.1'R TO STA.1+60.7-10.5'L – 20 FT
STA.1+63.2-13.0'L TO STA.2+11.3-12.6'L – 48 FT
STA.2+13.8-15.1'L TO STA.2+13.8-23.1'L – 8 FT

36" RCP FLARED END
STA.2+13.8-31.2'L – 1 EA

5'X5' JUNCTION BOX
STA.1+60.7-13.0'L – 1 EA
STA.2+13.8-12.6'L – 1 EA

18" RCP ARCH CLASS 3
STA.3+77.8-14.5'L TO STA.4+09.8-14.1'L – 32 FT

18" RCP ARCH FLARED END
STA.3+71.8-14.5'L – 1 EA
STA.4+15.6-14.1'L – 1 EA



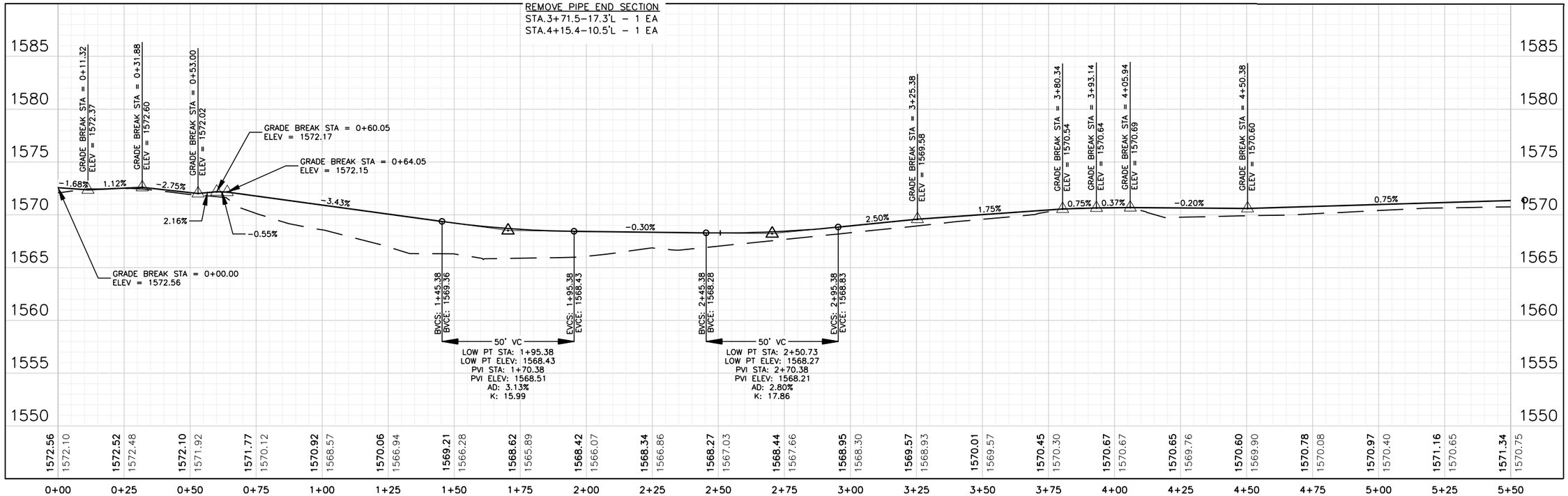
REMOVE ASPHALT CONCRETE PAVEMENT
STA.0+32 – 248 SY
STA.3+93 – 85 SY

REMOVE CONCRETE CURB AND GUTTER
STA.0+11.3-8.5'L TO STA.0+11.3-14.5'L – 6 FT
STA.0+48.4-16.3'L TO STA.0+48.4-22.3'L – 6 FT

REMOVE PIPE CULVERT
STA.1+60.9-9.1'R TO STA.1+60.7-13.3'L – 23 FT
STA.3+74.1-17.0'L TO STA.4+12.8-10.8'L – 40 FT

REMOVE PIPE END SECTION
STA.3+71.5-17.3'L – 1 EA
STA.4+15.4-10.5'L – 1 EA

ASPHALT CONCRETE COMPOSITE (4")
STA.0+32 – 42 TON
STA.3+93 – 14 TON



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9236
GABRIEL G. LABER
7/11/18
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	17	56

FILE: 667021 – Plan and Profile.dwg
PLOTTING DATE: 2018-06-01 INTIALS: GGL
REVISION DATE:

18" RCP ARCH CLASS 3
STA.6+37.6–13.8'L TO STA.6+69.6–13.8'L – 32 FT
STA.7+87.1–13.9'L TO STA.8+07.1–14.5'L – 20 FT

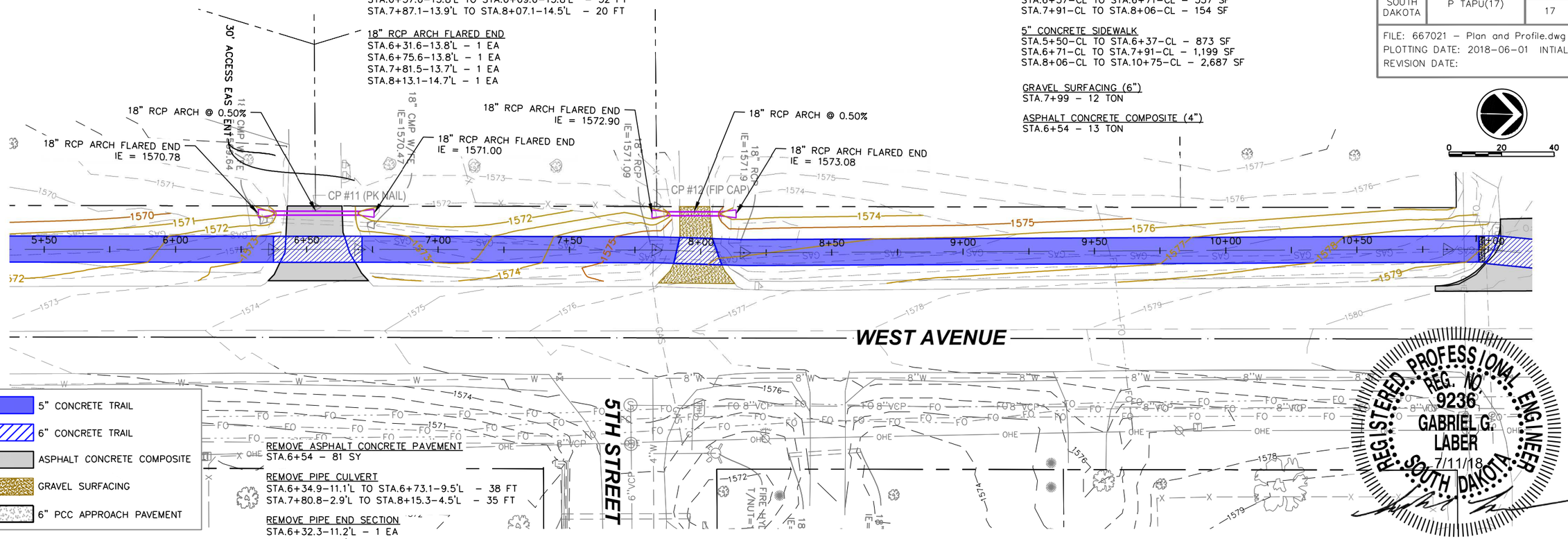
18" RCP ARCH FLARED END
STA.6+31.6–13.8'L – 1 EA
STA.6+75.6–13.8'L – 1 EA
STA.7+81.5–13.7'L – 1 EA
STA.8+13.1–14.7'L – 1 EA

6" CONCRETE SIDEWALK
STA.6+37–CL TO STA.6+71–CL – 337 SF
STA.7+91–CL TO STA.8+06–CL – 154 SF

5" CONCRETE SIDEWALK
STA.5+50–CL TO STA.6+37–CL – 873 SF
STA.6+71–CL TO STA.7+91–CL – 1,199 SF
STA.8+06–CL TO STA.10+75–CL – 2,687 SF

GRAVEL SURFACING (6")
STA.7+99 – 12 TON

ASPHALT CONCRETE COMPOSITE (4")
STA.6+54 – 13 TON

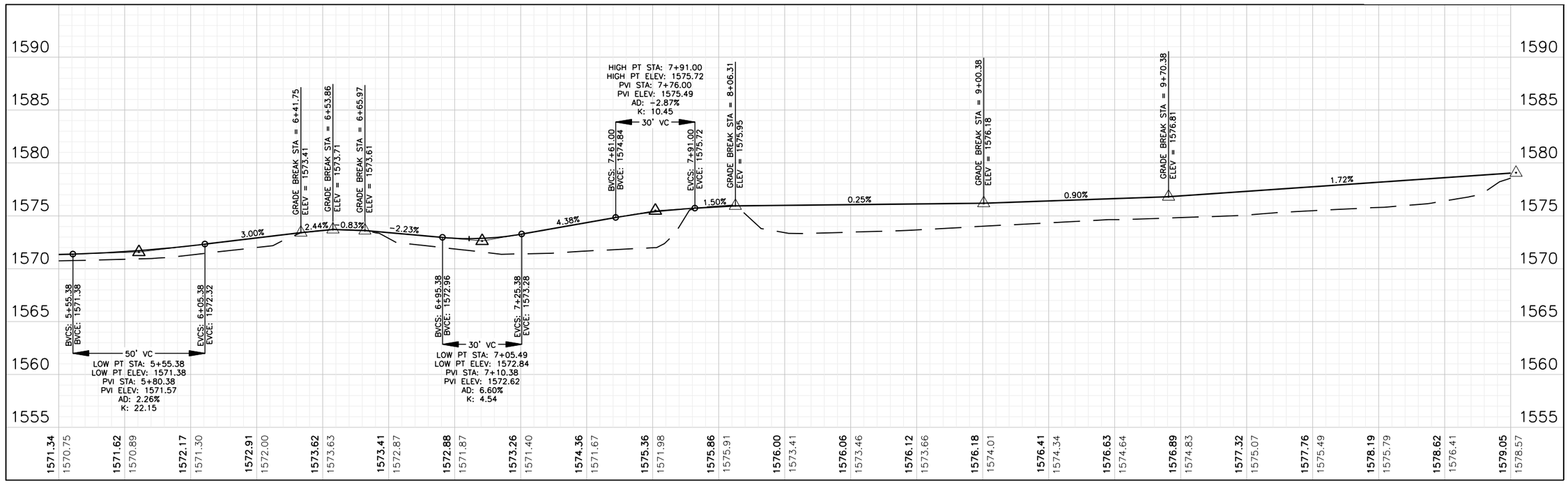


REMOVE ASPHALT CONCRETE PAVEMENT
STA.6+54 – 81 SY

REMOVE PIPE CULVERT
STA.6+34.9–11.1'L TO STA.6+73.1–9.5'L – 38 FT
STA.7+80.8–2.9'L TO STA.8+15.3–4.5'L – 35 FT

REMOVE PIPE END SECTION
STA.6+32.3–11.2'L – 1 EA
STA.6+75.7–9.4'L – 1 EA

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9236
GABRIEL G. LABER
7/11/18
SOUTH DAKOTA



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	18	56

FILE: 667021 – Plan and Profile.dwg
PLOTTING DATE: 2018-07-11 INTIALS: GGL
REVISION DATE: 2018-07-11

REMOVE SIGN FOR RESET
STA.10+97–3.6'L – 1 EA

RESET SIGN
STA.10+97–7.5'L – 1 EA

6" REINFORCED CONCRETE SIDEWALK
STA.11+02–CL TO STA.11+45–CL – 477 SF

6" CONCRETE SIDEWALK
STA.10+96–CL TO STA.11+02–CL – 55 SF
STA.11+45–CL TO STA.11+52–CL – 38 SF
STA.12+91–CL TO STA.13+04–CL – 75 SF
STA.13+17–CL TO STA.13+31–CL – 86 SF
STA.13+98–CL TO STA.14+12–CL – 88 SF

5" CONCRETE SIDEWALK
STA.10+75–CL TO STA.10+96–CL – 214 SF
STA.11+52–CL TO STA.12+91–CL – 836 SF
STA.13+04–CL TO STA.13+17–CL – 76 SF
STA.13+31–CL TO STA.13+98–CL – 401 SF
STA.14+12–CL TO STA.15+50–CL – 828 SF

TYPE 1 DETECTABLE WARNINGS
STA.10+97.6–CL – 20 SF
STA.11+50.6–CL – 12 SF

15" RCP CLASS 3
STA.11+40.0–27.7'L TO STA.11+59.6–4.1'R – 32 FT
STA.13+94.6–5.5'R TO STA.14+41.8–3.7'L – 40 FT

15" RCP FLARED END
STA.11+40.0–33.1'L – 1 EA
STA.13+88.6–5.4'R – 1 EA
STA.14+47.4–5.8'L – 1 EA

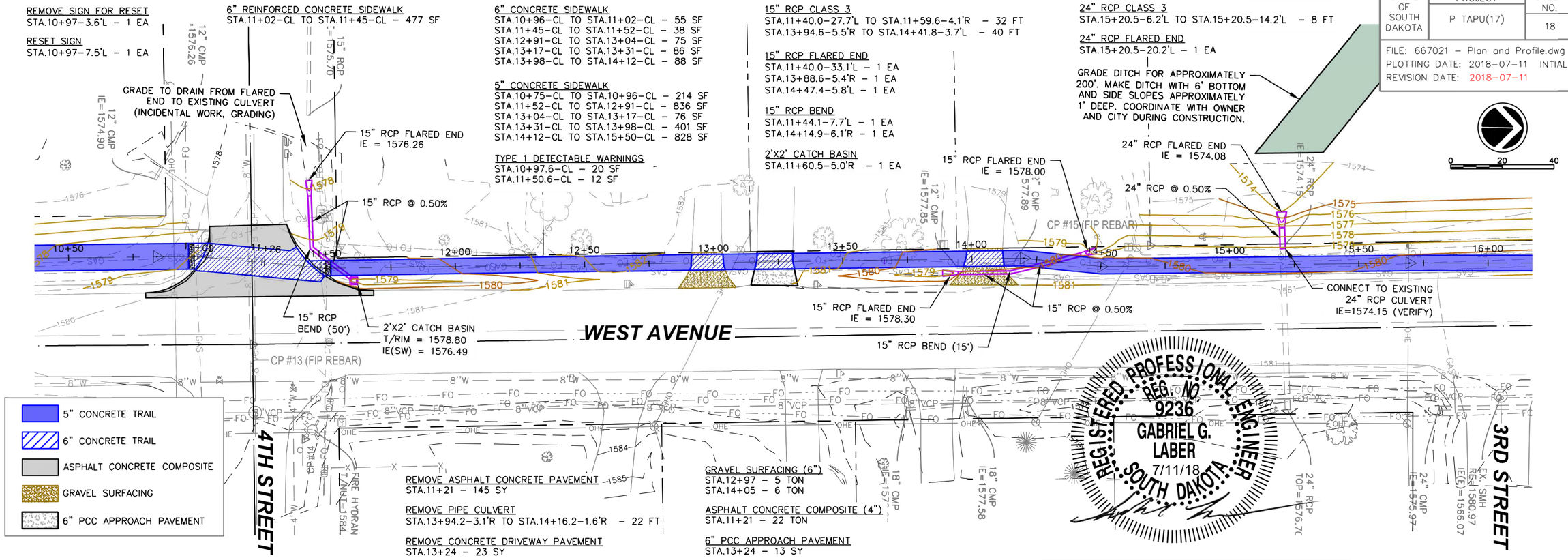
15" RCP BEND
STA.11+44.1–7.7'L – 1 EA
STA.14+14.9–6.1'R – 1 EA

2'X2' CATCH BASIN
STA.11+60.5–5.0'R – 1 EA

24" RCP CLASS 3
STA.15+20.5–6.2'L TO STA.15+20.5–14.2'L – 8 FT

24" RCP FLARED END
STA.15+20.5–20.2'L – 1 EA

GRADE DITCH FOR APPROXIMATELY 200'. MAKE DITCH WITH 6' BOTTOM AND SIDE SLOPES APPROXIMATELY 1' DEEP. COORDINATE WITH OWNER AND CITY DURING CONSTRUCTION.



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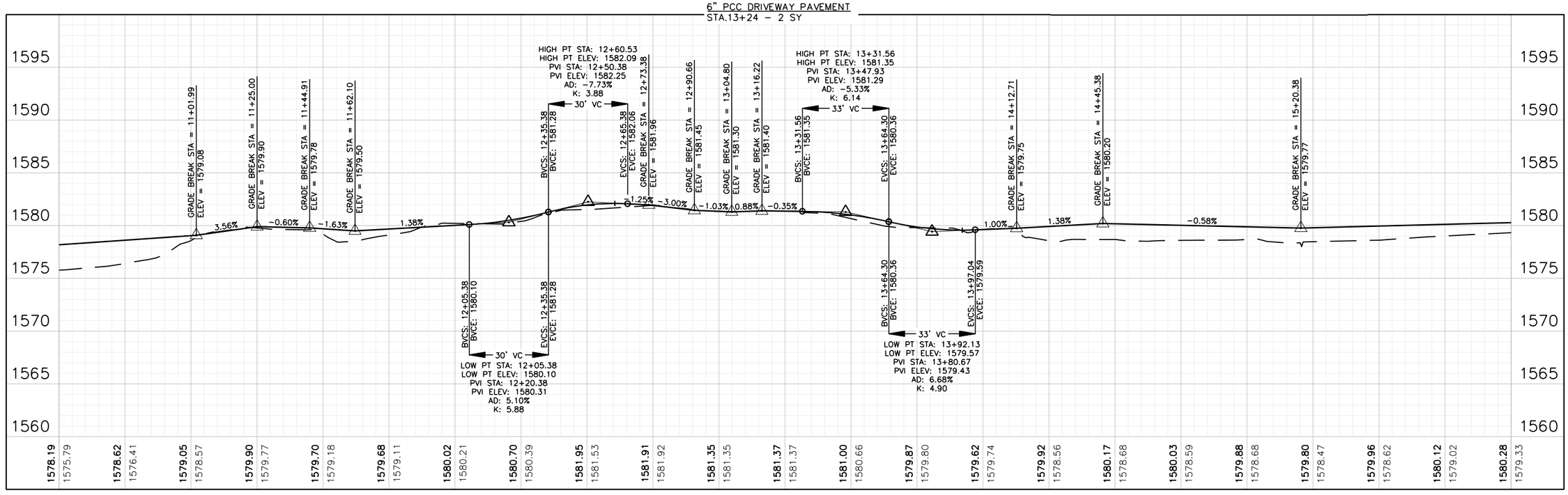
6" PCC DRIVEWAY PAVEMENT
STA.13+24 – 2 SY



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	19	56

FILE: 667021 – Plan and Profile.dwg
PLOTTING DATE: 2018-07-11 INTIALS: GGL
REVISION DATE: 2018-07-11

GRADE DITCH FOR APPROXIMATELY 200'. MAKE DITCH WITH 6' BOTTOM AND SIDE SLOPES APPROXIMATELY 1' DEEP. COORDINATE WITH OWNER AND CITY DURING CONSTRUCTION.

24" RCP FLARED END
IE = 1574.08

24" RCP @ 0.50%

CONNECT TO EXISTING 24" RCP CULVERT IE=1574.15 (VERIFY)

24" RCP IE=1574.15

6" CONCRETE SIDEWALK
STA.17+36–CL TO STA.17+42–CL – 32 SF
STA.17+72–CL TO STA.17+77–CL – 31 SF
STA.19+19–CL TO STA.19+33–CL – 85 SF
STA.19+81–CL TO STA.19+84–CL – 16 SF
STA.20+35–CL TO STA.20+38–CL – 11 SF

5" CONCRETE SIDEWALK
STA.15+50–CL TO STA.17+36–CL – 1,117 SF
STA.17+77–CL TO STA.19+19–CL – 850 SF
STA.19+33–CL TO STA.19+81–CL – 286 SF
STA.20+38–CL TO STA.20+60–CL – 91 SF

TYPE 1 DETECTABLE WARNINGS
STA.17+37.4–CL – 12 SF
STA.17+75.8–CL – 12 SF
STA.19+82.2–CL – 12 SF
STA.20+36.3–CL – 8 SF

18" RCP ARCH CLASS 3
STA.18+93.6–13.3'L TO STA.19+33.4–7.0'L – 32 FT

18" RCP ARCH FLARED END
STA.18+87.8–14.6'L – 1 EA

18" RCP ARCH BEND
STA.19+12.9–7.6'L – 1 EA

2'X2' CATCH BASIN
STA.19+34.4–7.0'L – 1 EA

6" REINFORCED CONCRETE SIDEWALK
STA.17+42–CL TO STA.17+72–CL – 189 SF

GRAVEL SURFACING (6")
STA.19+26 – 5 TON

ASPHALT CONCRETE COMPOSITE (4")
STA.17+57 – 12 TON

REMOVE TREES (CLEARING)

18" RCP ARCH FLARED END
IE = 1580.19

2'X2' CATCH BASIN
T/RIM = 1582.50
IE(S) = 1580.42

18" RCP IE=1580.72

EX. SMH RE=1583.33

18" RCP TOP=1581.99

REMOVE TREES (CLEARING)

18" RCP ARCH BEND

18" RCP ARCH @ 0.50%

CP #16 (FIP CAP)

CP #17 (FIP REBAR)

CP #18 (FIP NAIL)

WEST AVENUE

3RD STREET

MAIN STREET

REMOVE ASPHALT CONCRETE PAVEMENT
STA.17+57 – 100 SY

REMOVE PIPE CULVERT
STA.19+14.0–6.5'L TO STA.19+34.2–4.7'L – 20 FT

REMOVE SIGN FOR RESET
STA.18+05–1.3'R – 1 EA
STA.20+46–1.5'L – 1 EA

RESET SIGN
STA.18+05–4.7'R – 1 EA
STA.20+40–4.0'L – 1 EA

ADJUST MANHOLE
STA.19+52.5–2.3'L – 1 EA

24" CMP IE=1575.97

EX. SMH RE=1580.97 IE(E)=1566.0

18" RCP IE=1578.

18" RCP IE=1579.57

FIRE HYDR T/NUT=158

5" CONCRETE TRAIL
6" CONCRETE TRAIL
ASPHALT CONCRETE COMPOSITE
GRAVEL SURFACING
6" PCC APPROACH PAVEMENT

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9236
GABRIEL G. LABER
7/11/18
SOUTH DAKOTA

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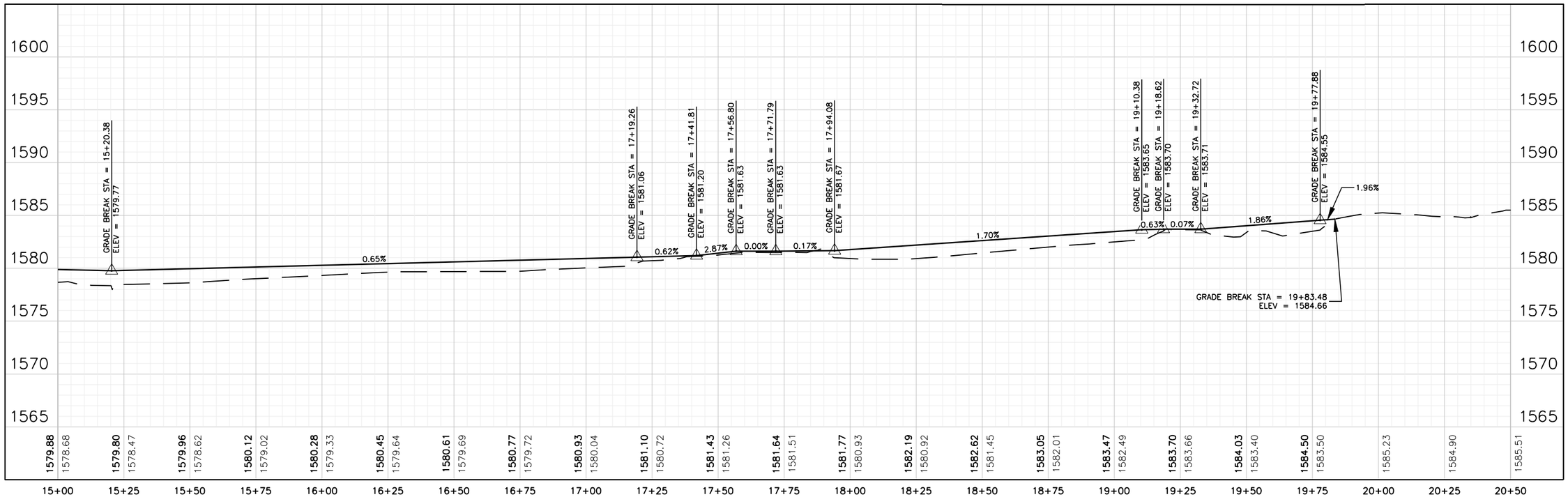

INTERSECTIONS & PAVEMENT MARKINGS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	20	56

FILE: 667021 – Intersctns & Pvmt Markings.dwg
PLOTTING DATE: 2018-06-04 INTIALS: GGL
REVISION DATE:

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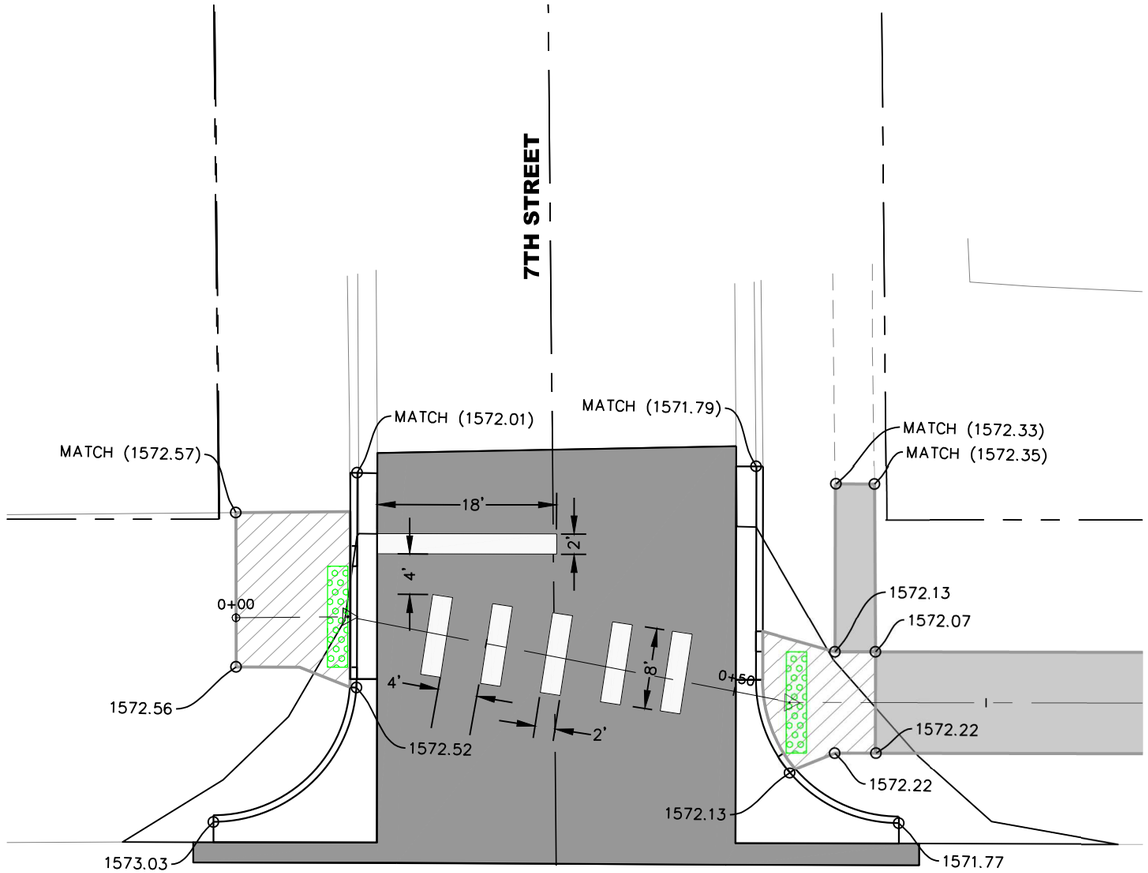

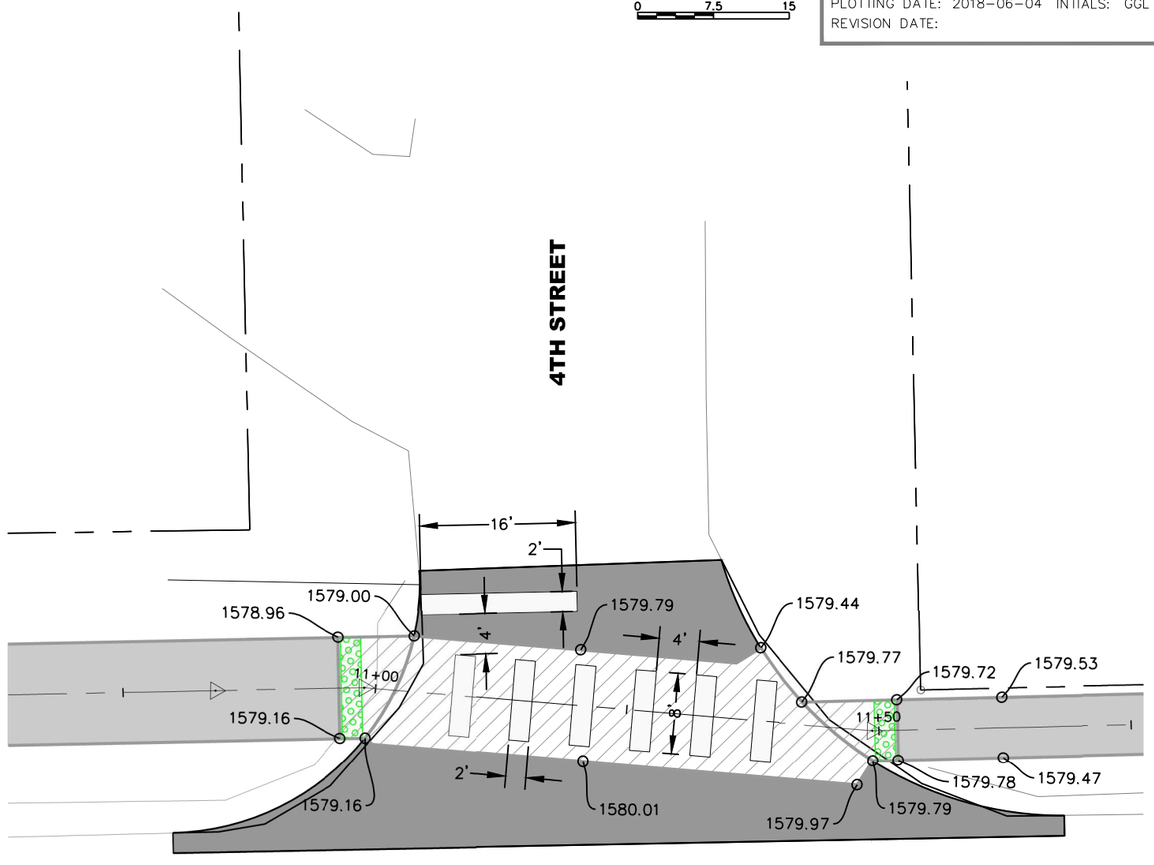

TYPE 1 DETECTABLE WARNING PANEL

PAVEMENT MARKINGS 24" WHITE

ASPHALT PATCH

5" CONCRETE SIDEWALK

6" CONCRETE SIDEWALK

4TH STREET

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SOUTH DAKOTA

INTERSECTIONS & PAVEMENT MARKINGS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	21	56

FILE: 667021 – Intersctns & Pvmt Markings.dwg
PLOTTING DATE: 2018-06-04 INTIALS: GGL
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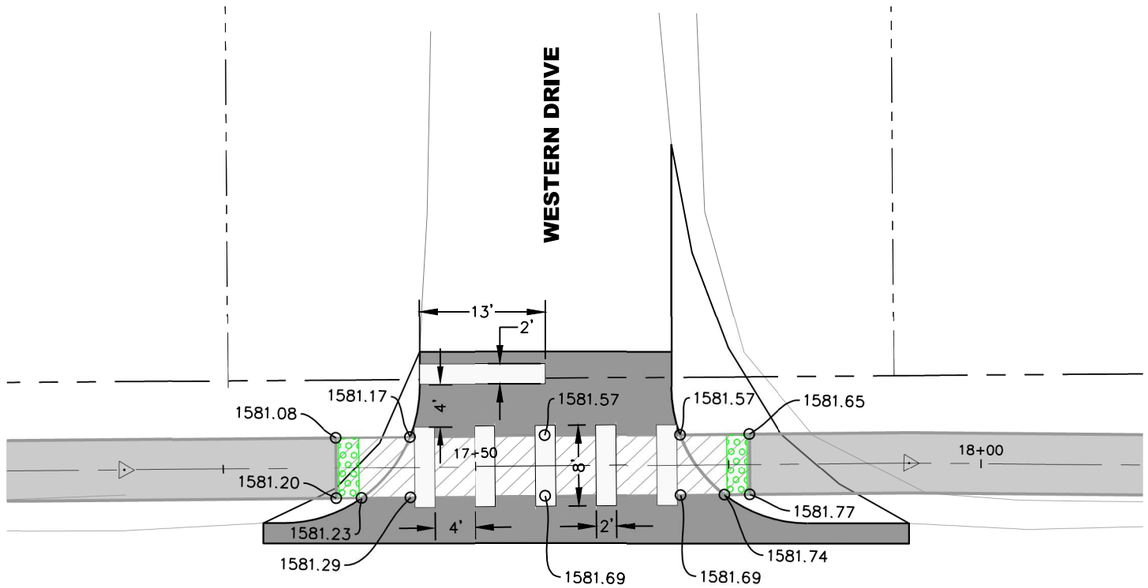

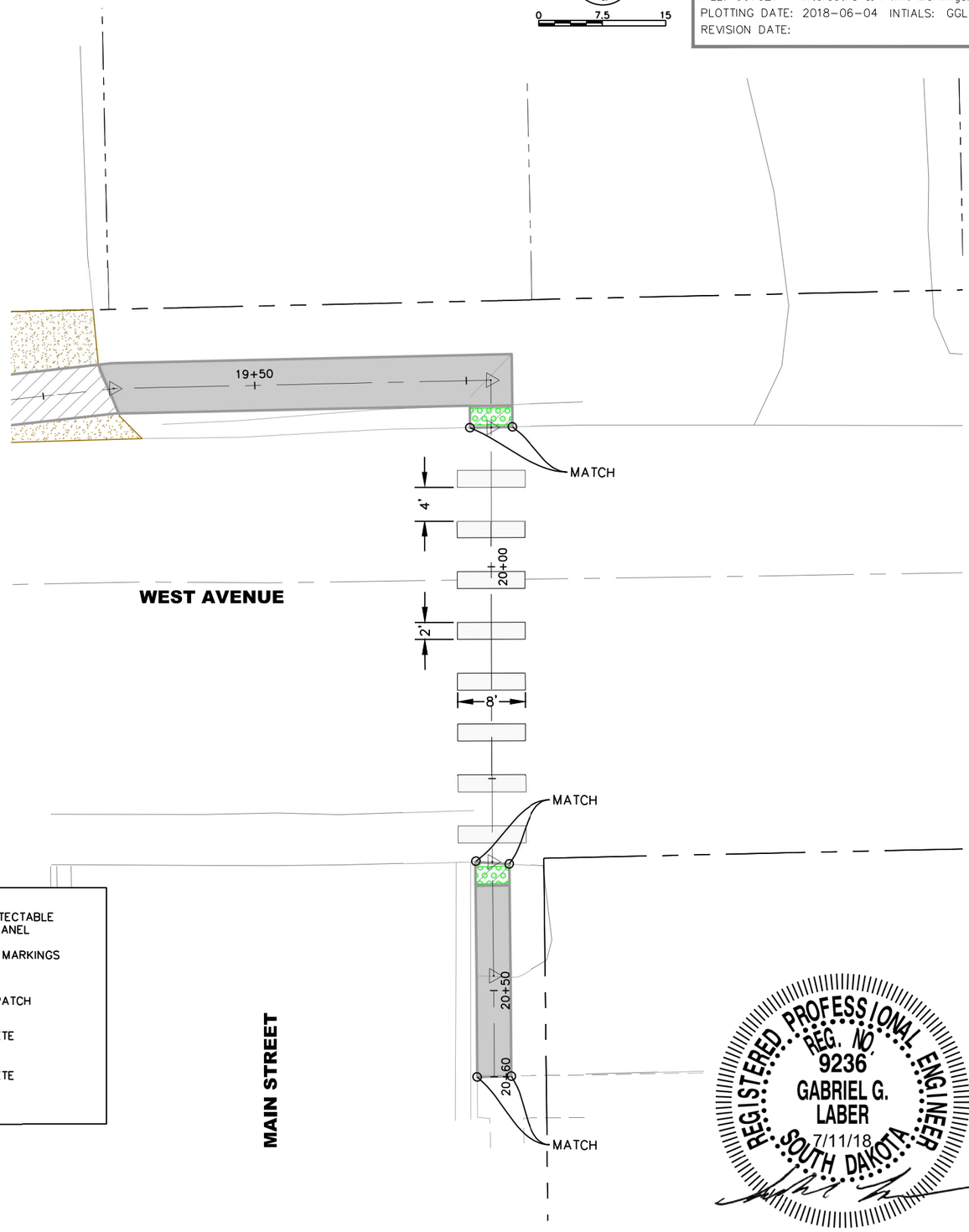

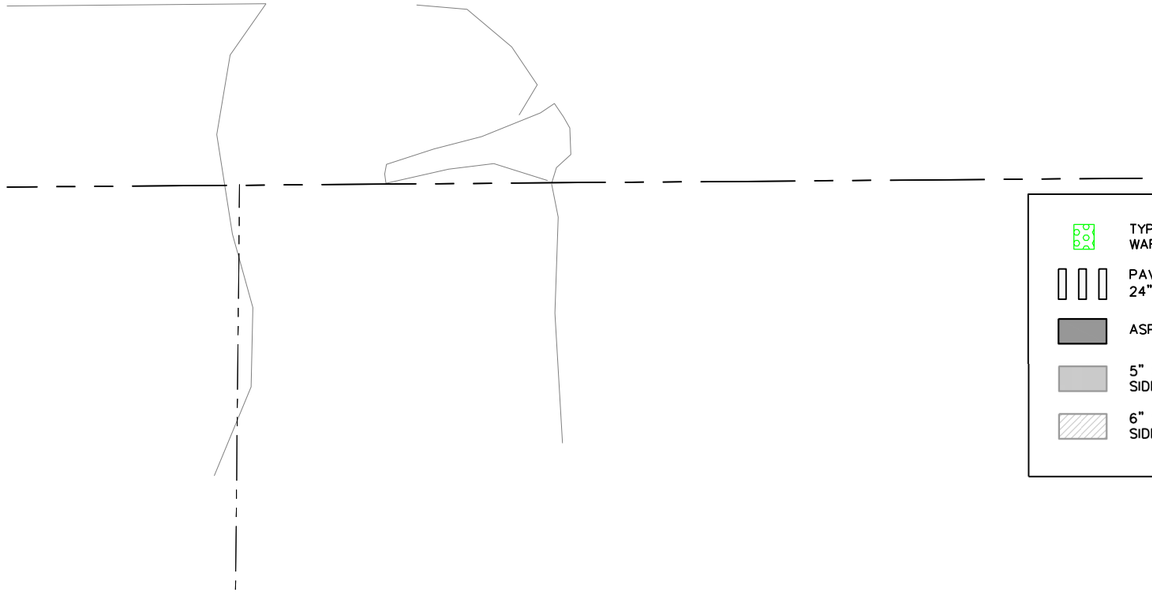

TYPE 1 DETECTABLE WARNING PANEL
PAVEMENT MARKINGS 24" WHITE
ASPHALT PATCH
5" CONCRETE SIDEWALK
6" CONCRETE SIDEWALK

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STORM WATER POLLUTION PREVENTION PLAN CHECKLIST

*(The numbers right of the title headings are **reference numbers** to the GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES*

SITE DESCRIPTION (4.2 1)

- **Project Limits: See Title Sheet (4.2 1.b)**
- **Project Description: See Title Sheet (4.2 1.a.)**
- **Site Map(s): See Title Sheet and Plans (4.2 1.f. (1)-(6))**
- **Major Soil Disturbing Activities:** (check all that apply)
  - ☒ Clearing and grubbing
  - ☒ Excavation/borrow
  - ☒ Grading and shaping
  - ☒ Filling
  - ☒ Cutting and filling
  - ☐ Other (describe):
- **Total Project Area:** Approximately 1.1 acres **(4.2 1.b.)**
- **Total Area To Be Disturbed:** Approximately 1.1 acres **(4.2 1.b.)**
- **Existing Vegetative Cover (%):** 90
- **Soil Properties:** The site primarily consists of Nora-Crofton and Moody-Nora soils. These soils are well drained on slopes of 2 to 9 percent and are of the hydrologic soil group C. The site also consists of a small amount of whitewood silty clay loam. These soils are somewhat poorly drained on slopes of 0 to 2 percent and are of the hydrologic soil group C/D. **(4.2 1. d.)**
- **Name of Receiving Water Body/Bodies** Willow Creek **(4.2 1.e.)**

ORDER OF CONSTRUCTION ACTIVITIES (4.2 1.c.)

(Stabilization measures shall be initiated as soon as possible, but in no case later than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Initiation of final or temporary stabilization may exceed the 14-day limit if earth disturbing activities will be resumed within 21 days.)

- **Construction Sequence:**
  - Install preliminary erosion control measures such as silt fence and inlet protection prior to beginning grading activities.
  - Clearing and grubbing.
  - Remove and store topsoil.
  - Excavation and embankment activities.
  - Stabilize disturbed areas.
  - Install pavement, storm sewers, curb and gutter.
  - Install inlet and culvert protection after completing storm drainage and other utility installations.
  - Complete final grading and place topsoil.
  - Reseed areas disturbed by removal activities.

EROSION AND SEDIMENT CONTROLS (4.2 2.a.(1)(a)-(f))

(Check all that apply)

- **Stabilization Practices (See Detail Plan Sheets)**
  - ☐ Temporary Seeding (Cover Crop Seeding)
  - ☒ Permanent Seeding
  - ☐ Sodding
  - ☐ Planting (Woody Vegetation for Soil Stabilization)
  - ☐ Mulching (Grass Hay or Straw)
  - ☒ Fiber Mulching (Wood Fiber Mulch)
  - ☐ Soil Stabilizer
  - ☐ Bonded Fiber Matrix
  - ☐ Fiber Reinforced Matrix
  - ☒ Erosion Control Blankets
  - ☐ Vegetation Buffer Strips
  - ☐ Surface Roughening (e.g. tracking)
  - ☐ Other:
- **Structural Temporary Erosion and Sediment Controls**
  - ☒ Silt Fence
  - ☐ Floating Silt Curtain
  - ☐ Erosion Bales
  - ☐ Temporary Berm (Windrow)
  - ☐ Temporary Slope Drain
  - ☐ Erosion Control Wattles
  - ☐ Temporary Sediment Barriers
  - ☐ Turf Reinforcement Mat
  - ☐ Riprap
  - ☐ Gabions
  - ☐ Rock Check Dams
  - ☐ Sediment Traps/Basins
  - ☒ Culvert Inlet Protection
  - ☐ Transition Mats
  - ☒ Median/Area Drain Inlet Protection
  - ☐ Curb Inlet Protection
  - ☐ Stabilized Construction Entrances
  - ☐ Entrance/Exit Equipment Tire Wash
  - ☐ Interceptor Ditch
  - ☒ Concrete Washout Facility
  - ☐ Temporary Diversion Channel
  - ☐ Work Platform
  - ☐ Temporary Water Barrier
  - ☐ Temporary Water Crossing
  - ☐ Other:
- **Wetland Avoidance**

  Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes ☐ No ☒ If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404 permit process with the USACE.
- **Storm Water Management (4.2 2.b., (1) and (2))**

  Storm water management will be handled by temporary controls outlined in "EROSION AND SEDIMENT CONTROLS" above, and any permanent controls needed to meet permanent storm water management needs in the post construction period. Permanent controls will be shown on the plans and noted as permanent.
- **Other Storm Water Controls (4.2 2.c., (1) and (2))**
  - **Waste Disposal**

    All liquid waste materials will be collected and stored in sealed metal containers approved by the project engineer. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal, and notices stating proper practices will be posted in the field office. The general Contractor's representative responsible for the conduct of work on the site will be responsible for seeing waste disposal procedures are followed.
  - **Hazardous Waste**

    All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the individual designated as the Contractor's on-site representative will be responsible for seeing that these practices are followed.
  - **Sanitary Waste**

    Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units in a timely manner by a licensed waste management Contractor or as required by any local regulations.

MAINTENANCE AND INSPECTION (4.2 3. and 4.2 4.)

- **Maintenance and Inspection Practices**
  - Inspections will be conducted at least one time per week and after a storm event of 0.50 inches or greater.
  - All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
  - Silt fence will be inspected for depth of sediment and for tears in order to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches 1/3 of the height of the silt fence.
  - Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction.
  - Check dams will be inspected for stability. Sediment will be removed when depth reaches ½ the height of the dam.
  - All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
  - Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
  - The SDDOT Project Engineer and Contractor's Erosion Control Supervisor are responsible for inspections. Maintenance, repair activities are the responsibility of the Contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

NON-STORM WATER DISCHARGES (3.0)

The following non-storm water discharges are anticipated during the course of this project (check all that apply).

- ☐ Discharges from water line flushing.
- ☒ Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.
- ☐ Uncontaminated ground water associated with dewatering activities.

MATERIALS INVENTORY (4.2. 2.c.(2))

The following materials or substances are expected to be present on the site during the construction period. These materials will be handled as noted under the headings "EROSION AND SEDIMENT CONTROLS" and "SPILL PREVENTION" (check all that apply).

- ☒ Concrete and Portland Cement
- ☐ Detergents
- ☒ Paints
- ☒ Metals
- ☒ Bituminous Materials
- ☒ Petroleum Based Products
- ☒ Cleaning Solvents
- ☒ Wood
- ☒ Cure
- ☐ Texture
- ☒ Chemical Fertilizers
- ☐ Other:

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SOUTH DAKOTA
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SPILL PREVENTION (4.2 2.c.(2))

- **Material Management**
  - Housekeeping
    - Only needed products will be stored on-site by the Contractor.
    - Except for bulk materials the contractor will store all materials under cover and in appropriate containers.
    - Products must be stored in original containers and labeled.
    - Material mixing will be conducted in accordance with the manufacturer's recommendations.
    - When possible, all products will be completely used before properly disposing of the container off-site.
    - The manufacturer's directions for disposal of materials and containers will be followed.
    - The Contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
    - Dust generated will be controlled in an environmentally safe manner.
    - Vegetation areas not essential to the construction project will be preserved and maintained as noted on the plans.
  - Hazardous Materials
    - Products will be kept in original containers unless the container is not resealable.
    - Original labels and material safety data sheets will be retained in a safe place to relay important product information.
    - If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
    - Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
    - Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any storm water system or storm water treatment system.
    - Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, residuals from concrete saw cutting (either wet or dry), and mixer washout waters will be collected on site and managed to prevent contamination of storm water runoff.

- **Product Specific Practices (6.8)**
  - Petroleum Products
    All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.
  - Fertilizers
    Fertilizers will be applied only in the amounts specified by the SDDOT. Once applied, fertilizers will be worked into the soil to limit the exposure to storm water. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.
  - Paints
    All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer's instructions and any applicable state and local regulations.
  - Concrete Trucks
    Contractors will provide designated truck washout facilities on the site. These areas must be self-contained and not connected to any storm water outlet of the site. Upon completion of construction, the area at the washout facility will be properly stabilized.

- **Spill Control Practices (4.2 2 c.(2))**

In addition to the previous housekeeping and management practices, the following practices will be followed for spill prevention and cleanup if needed.

- For all hazardous materials stored on site, the manufacturer's recommended methods for spill cleanup will be clearly posted. Site personnel will be made aware of the procedures and the locations of the information and cleanup supplies.
- Appropriate cleanup materials and equipment will be maintained by the Contractor in the materials storage area on-site. As appropriate, equipment and materials may include items such as brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for cleanup purposes.
- All spills will be cleaned immediately after discovery and the materials disposed of properly.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- After a spill a report will be prepared describing the spill, what caused it, and the cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.
- The Contractor's site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator. The Contractor is responsible for ensuring that the site superintendent has had appropriate training for hazardous materials handling, spill management, and cleanup.

- **Spill Response (4.2 2 c.(2))**

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into storm water runoff and conveyance systems. If the release has impacted on-site storm water, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens storm water or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

- The Contractor's site superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
- If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.
- Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the Contractor at the site.
- If oil sheen is observed on surface water (e.g. settling ponds, detention ponds, swales), action will be taken immediately to remove the material causing the sheen. The Contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.
- If a spill occurs the superintendent or the superintendent's designee will be responsible for completing the spill reporting form and for reporting the spill to SD DENR.
- Personnel with primary responsibility for spill response and clean up will receive training by the Contractor's site superintendent or designee. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

SPILL NOTIFICATION

In the event of a spill, the Contractor's site superintendent will make the appropriate notification(s), consistent with the following procedures:

- A release or spill of a regulated substance (includes petroleum and petroleum products) must be reported to DENR immediately **if any one of the following** conditions exists:
  - The discharge threatens or is in a position to threaten the waters of the state (surface water or ground water).
  - The discharge causes an immediate danger to human health or safety.
  - The discharge exceeds 25 gallons.
  - The discharge causes a sheen on surface water.
  - The discharge of any substance that exceeds the ground water quality standards of ARSD (Administrative Rules of South Dakota) chapter 74:51:01.
  - The discharge of any substance that exceeds the surface water quality standards of ARSD chapter 74:51:01.
  - The discharge of any substance that harms or threatens to harm wildlife or aquatic life.
  - The discharge of crude oil in field activities under SDCL (South Dakota Codified Laws) chapter 45-9 is greater than 1 barrel (42 gallons).

To report a release or spill, call DENR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central time). To report the release after hours, on weekends or holidays, call State Radio Communications at 605-773-3231. Reporting the release to DENR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, the responsible person must also contact local authorities to determine the local reporting requirements for releases. DENR recommends that spills also be reported to the National Response Center at (800) 424-8802.

CONSTRUCTION CHANGES (4.4)

When changes are made to the construction project that will require alterations in the temporary erosion controls of the site, the Storm Water Pollution Prevention Plan (SWPPP) will be amended to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SDDOT Project Engineer will modify the SWPPP plan (DOT 298) and drawings to reflect the needed changes. Copies of changes will be routed per DOT 298. Copies of forms and the SWPPP will be retained in a designated place for review over the course of the project.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P TAPU(17)	24	56

CERTIFICATIONS

A contractor certification form must be submitted for each contractor that will have day to day responsibility for erosion and sediment control practices.

http://denr.sd.gov/des/sw/eforms/E2110LDV1-ContractorCertification.pdf

- **Certification of Compliance with Federal, State, and Local Regulations**

  The Storm Water Pollution Prevention Plan (SWPPP) for this project reflects the requirements of all local municipal jurisdictions for storm water management and sediment and erosion control as established by ordinance, as well as other state and federal requirements for sediment and erosion control plans, permits, notices or documentation as appropriate.

- **City of Crooks**

  I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____

Authorized Signature (See the General Permit, Section 6.7.1.C.)

- **Prime Contractor**

  This section is to be executed by the General Contractor after the award of the contract. This section may be executed any time there is a change in the Prime Contractor of the project.

  I certify under penalty of law that this document and all attachments will be revised or maintained under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____

Authorized Signature

CONTACT INFORMATION

- **Contractor Information**:
  - Prime Contractor Name:
  - Contractor Contact Name:
  - Address:
  - Address:
  - City: State: Zip:
  - Office Phone: Field:
  - Cell Phone: Fax:

- **Erosion Control Supervisor**
  - Name:
  - Address:
  - Address:
  - City: State: Zip:
  - Office Phone: Field:
  - Cell Phone: Fax:

- **Project Engineer**
  - Name: Gabriel Laber, PE
  - Business Address: 2909 E. 57th Street, Suite 101
  - Job Office Location: DGR Engineering
  - City: Sioux Falls State: SD Zip: 57108
  - Office Phone: (605) 339-4157 Field:
  - Cell Phone: (605) 999-2166 Fax:(605) 339-4175

- **SD DENR Contact Spill Reporting**
  - Business Hours Monday-Friday (605) 773-3296
  - Nights and Weekends (605) 773-3231

- **SD DENR Contact for Hazardous Materials**
  - (605) 773-3153

- **National Response Center Hotline**
  - (800) 424-8802

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EROSION/SEDIMENT CONTROL NOTES

A Notice of Intent (NOI) for coverage under the General Permit for Storm Water Discharges Associated with Construction Activities has been submitted to the SD DENR and the permit number is **SDR10I404**. A copy of the permit may be downloaded from:

http://denr.sd.gov/des/sw/IPermits/ConstructionGeneralPermit2010.pdf

The Contractor shall perform all construction on the project in such a manner to minimize erosion from areas disturbed by excavation, grading, or other activities.

The Contractor shall conduct his excavation and haul operations in such a manner as to minimize vehicle tracking of mud on to paved street surfaces. Should the Contractor track any mud onto a paved street as part of his operations, the Contractor will be responsible for immediately cleaning the street by street sweeping or other means. The Contractor shall work to stabilize disturbed areas as soon as practical.

Erosion and Sediment Control Measures will consist of silt fence, erosion control blanket, sediment control at inlets, mulching, and seeding. Additional erosion control may be required as determined by the Engineer.

Seed/Mulch will be placed on all disturbed areas within 5 days of the topsoil being placed and graded.

All paved streets adjacent to the site shall be cleaned at the end of each working day if sediment from the disturbed area is tracked on them.

TIME LIMITS FOR EROSION CONTROL METHODS

The maximum time limits of land exposure for the various erosion control methods are summarized below:

Erosion Control Method	Max. Allowable Period of Exposure (Months)
Surface roughening	1
Fiber mulching	12
Temporary revegetation	12 - 24
Permanent revegetation	24 or more
Soil stockpile revegetation	2
Early application of road base	1

No separate payment will be made for erosion control which will be incidental to the other appropriate bid items on the project.

METHODS OF ENSURING SURFACE WATER QUALITY

The Contractor shall be responsible to ensure no sediment laden waters leave the project without exposure to an erosion or sediment control device.

The only non-storm water discharge allowed by the General Permit for Storm Water Discharges Associated with Construction Activities is uncontaminated ground water or waters, used as a best management practice, to wash vehicles and control dust. It is the responsibility of the Contractor to obtain a General permit to discharge under the South Dakota Surface Water Discharge System for temporary discharge activities in South Dakota (dewatering permit) for all other non-storm water discharges. All monitoring, testing, and other requirements of the dewatering permit are the responsibility of the Contractor.

Pumping (mechanically discharging) sediment laden water including ponded storm water or contaminated trench dewatering into the storm sewer or off the project site is not covered under the General Permit. It is the responsibility of the Contractor to obtain and comply with a dewatering permit for these activities. The Engineer may notify the SDDENR if the Contractor is observed pumping sediment laden water into the storm sewer or off site. Pumping sediment laden water through inlet protection is not allowed as a BMP.

In lieu of pumping sediment laden water, the following are some methods the Contractor may use to control sediment laden water.

- The best method is for the Contractor to maintain positive drainage during all phases of the project to prevent water from ponding on the project.
- Treat the sediment laden water onsite through the use of filter bags, deflocculating chemicals, sediment basins, or a portable containment system.
- Pump or discharge the water to other portions of the site. This is allowed if the waters do not leave the project limits.

No payment will be made to the Contractor to comply with a dewatering permit unless otherwise specified and it will be considered incidental to the various bid items.

MODIFICATIONS OF EROSION AND SEDIMENT CONTROL DEVICES TO PREVENT PROPERTY DAMAGE

The Contractor is responsible to maintain drainage. In the event that an erosion or sediment control device is obstructing drainage and damage to property is possible the Contractor may temporarily modify or remove the device to facilitate drainage. An example is inlet protection in a sump location surrounded by buildings. If a device is removed for this purpose, the Contractor shall immediately notify the Engineer to discuss and implement alternatives to comply with the SWPPP and General Permit.

SEDIMENT CONTROL MEASURES

INSTALLATION OF SEDIMENT CONTROL MEASURES

The Contractor shall not begin the removal of surfacing or topsoil within the applicable work area until all applicable sediment control measures are placed. Sediment control measures shall be installed as necessary as construction progresses and these sediment control devices shall be installed within 24 hours at locations identified on the SWPPP.

LOW FLOW SILT FENCE

The low flow silt fence fabric provided shall be from the approved product list. The approved product list for low flow silt fence may be viewed at the following internet site:

http://sddot.com/business/certification/products/Default.aspx

Low flow silt fence shall be placed at the locations noted in the table and at locations that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.04 for details.

An additional quantity of Low Flow Silt Fence has been added to the Estimate of Quantities for temporary sediment control.

TABLE OF LOW FLOW SILT FENCE

Station	L/R	Location	Quantity (Ft)
4+16	L	RCP Flared End Section	20
6+76	L	RCP Flared End Section	20
8+13	L	RCP Flared End Section	20
13+89	R	RCP Flared End Section	20
		Additional Quantity:	120
		Total:	200

INTERIM SEDIMENT CONTROL AT INLET

Accumulated sediment should be removed and disposed of on site. Device should be cleaned or replaced if standing water is evident 48 hours after a rain event. Damaged devices must be repaired.

Inlet sediment control at inlets will be measured per each inlet protected. Additional measurement will not be made when a different type of inlet protection is installed at each location. Also, no additional measurement will be made when the same type of inlet protection is removed and reinstalled at the same location.

Interim Sediment Control at Inlet will be paid for at the contract unit price per each. Payment shall be full compensation for all materials, labor, equipment, and incidentals required to install, maintain, and remove the inlet protection.

TABLE OF INTERIM SEDIMENT CONTROL AT INLET

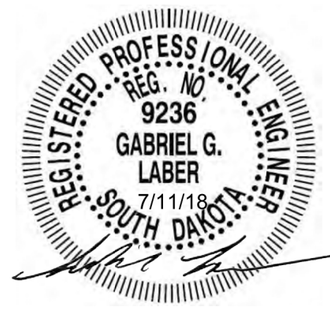
Station	L/R	Quantity (Each)
0+00	L	1
11+61	R	1
19+34	L	1
	Total:	3

CONCRETE WASHOUT AREA

Due to limited space within the project limits, there is no room anticipated for a concrete washout facility on-site. Concrete trucks will need to washout at the concrete plant or at an approved site constructed by the concrete supplier. Contractor may request an area to be used for an on-site concrete washout facility; however, the location must be approved by the City and Engineer prior to constructing.

If an on-site area is approved, the concrete washout area must be kept in a condition to maintain the capacity for all wasted concrete and washout water on the project.

Concrete washout areas shall be incidental to the work involved and no separate measurement or payment will be made.



STREET SWEEPING

Vehicle tracking of sediment from the construction site shall be minimized. Street sweeping shall be used if erosion and sediment control best management practices are not adequate to prevent sediment from being tracked onto the street.

Street sweeping is required during construction and before final completion of work to keep streets adjacent to and within the project area clean. The minimum equipment to be used for street sweeping shall be a skid loader with a pick up broom attachment or engineer approved equal. No rotary broom without the pick-up broom attachment/containment system will be acceptable to perform this work.

Sweeping shall be performed as needed to remove tracked mud from the roadway. Daily sweeping may be necessary if project conditions warrant.

All costs for cleaning the roadway with a pickup broom shall be incidental to the contract lump sum price for "Incidental Work (Grading)".

PERMANENT EROSION CONTROL MEASURES

INSTALLATION OF PERMANENT EROSION CONTROL MEASURES

This work shall be done as soon as possible after finish grading and topsoil placement is completed, and if practical, prior to seeding, fertilizing, and mulching of adjacent areas. At a minimum, the work must be completed within the timeframes listed within the Erosion/Sediment Control Notes.

WEED CONTROL DURING CONSTRUCTION

The Contractor shall be responsible to control all legumes, noxious weeds, and grass within the project limits, in both disturbed areas and undisturbed areas, throughout the duration of the project. Legumes, noxious weeds and grass shall be controlled by hand pulling, mowing, and/or inoculation.

If the Contractor chooses to inoculate weeds, the inoculation must be performed in accordance with the manufacturer's recommendations and all applicable federal, state, and local laws and ordinances. The Contractor is responsible for keeping all required chemical application records, and must provide them to the Engineer upon request. The inoculation product must be approved by the Engineer prior to application.

The amount of weed control required on the project will be at the discretion of the Engineer. All materials, equipment, tools, labor, and other appurtenances required to control all legumes, noxious weeds, and grass throughout the duration of the project shall be incidental to the seeding bid item.

WEED CONTROL FOR FINAL RESTORATION

Legumes and noxious weeds shall be controlled in all newly seeded and/or sodded areas by hand pulling, mowing, and/or inoculation for the duration of the 45 day maintenance period and until a uniform, perennial vegetative cover with a density of 70% of the native grasses has been established. This requirement applies to the project limits and to all contractor staging areas. If areas are dormant seeded, this requirement shall remain in effect until the following spring.

If the Contractor chooses to inoculate weeds, the inoculation must be performed in accordance with the manufacturer's recommendations and all applicable federal, state, and local laws and ordinances. The Contractor is responsible for keeping all required chemical application records, and must provide them to the Engineer upon request. The inoculation product must be approved by the Engineer prior to application.

More than one weed control application may be required depending on site conditions. The amount of weed control required on the project will be at the discretion of the Engineer. A pre-emergent application is recommended.

All materials, equipment, tools, labor and other appurtenances required to control all legumes and noxious weeds throughout the 45 day maintenance period and until a uniform, perennial vegetative cover with a density of 70% of the native grasses has been established shall be incidental to the seeding bid item.

SEEDBED PREPARATION

The initial preparation of the newly graded area for seeding shall consist of removing existing grass, vegetation and turf. Do not mix into topsoil. Loosen soil to a depth of at least 6 inches. Remove all stones, roots, trash and other extraneous matter. Grade the planting areas to a smooth, uniform surface that is loose and uniformly fine textured. Grade to within +/- 0.5" of the finish elevation. Remove ridges, pulverize soil clods to less than 1" and fill depressions to meet finish grades. The Contractor shall use a powered soil conditioner similar to a "Harley Rake" on all areas to be seeded. The Contractor will need prior authorization from the Engineer to commence seeding. Seedbed preparation shall be incidental to the "Seed Mixture" pay items.

MYCORRHIZAL INOCULUM

Mycorrhizal inoculum shall consist of mycorrhizal fungi spores and mycorrhizal fungi-infected root fragments in a solid carrier. The carrier may include organic materials, calcinated clay, or other materials consistent with application and good plant growth. The supplier shall provide certification of the fungal species claimed and the live propagule count. The inoculum shall include the following fungal species:

Glomus intraradices	25%
Glomus aggregatu	25%
Glomus mosseae	25%
Glomus etunicatum	25%

All seed shall be inoculated by the seed supplier with a minimum of 20,000 live propagules of mycorrhizal fungi per 1,000 square feet. All costs of inoculating the seed shall be incidental to the contract unit price per pound for the corresponding permanent seed mixture.

The mycorrhizal inoculum shall be as shown below or an approved equal:

Product	Manufacturer
MycoApply	Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 www.mycorrhizae.com
AM 120 Multi Species Blend	Reforestation Technologies Int. Gilroy, CA Phone: 1-800-784-4769 www.reforest.com

FERTILIZING

A commercial fertilizer with a minimum guaranteed analysis of 13-13-13, 18-46-0, 11-52-0, or an approved alternate fertilizer sold for use as a lawn starter fertilizer shall be applied to all areas designated for permanent seeding. The application rate of fertilizer shall be 300 pounds per acre.

Fertilizer shall be delivered to the site in bags, each fully labeled, conforming to the specifications and bearing the name and warranty of the producer. Appropriate documentation shall be given to the Engineer for approval prior to application.

PERMANENT SEEDING

The areas to be seeded consist of all newly graded areas within the project limits except for the top of roadways and temporary easements under cultivation.

Seeding and fertilizing shall comply with sections 730 and 731 of the Specifications except as noted below. Seasonal limitations have been designated below.

When to Plant:
Spring: April – June 15
Fall: August – Early September
Dormant: November – Freeze Up

Specifications:
- Minimum Purity 97% and Minimum Germination 85%
- Maximum Other Crop Content 0.10% and Maximum Weed Content 0.10%
- Components and/or percentages of the above blend may vary

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P TAPU(17)	27	56

Revised: 07-18-18

PERMANENT SEEDING (CONTINUED)

Type D Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/1000 SqFt)
Kentucky Bluegrass	Avalanche, Appalachian, Wildhorse, Blue Bonnet, Action	1.4
Perennial Ryegrass	Turf Type Varieties	1.4
Creeping Red Fescue	Epic, Boreal, Chantilly	1.4
Chewings Fescue	Ambrose, K2, Zodiac, Shadow III	1.4
Alkali Grass	Fults, Fults II, Quill, Salty	1.4
	Total:	7

Seed shall be delivered to the project in bags with seed tags attached. The tags will be collected from the bags by the Engineer during seeding. See plan notes on Labeling. Seed shall be applied using a press drill or slit seeder in all areas where possible. Hand seeding will be kept to a minimum and only done when site conditions prohibit the use of a drill or slit seeder.

These rates shall be doubled if seed is broadcast and shall be increased by 50 percent if the seeding is applied through hydraulic seeding. Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1. If hydraulic seeding is used, hydraulic mulching shall be done as a separate operation. All seed shall be drilled in with an approved drill and incorporated to the top ¼" +/- of topsoil. Small areas not accessible with a drill may be broadcast and dragged or raked in.

FIBER MULCHING

Fiber mulch shall be applied in a separate operation following permanent seeding.

An additional 2% by weight of tackifier shall be added to the fiber mulch product selected from the approved product list. If the product selected has guar gum tackifier included, then the additional 2% of tackifier shall be guar gum. If the product selected has synthetic tackifier included, then the additional 2% of tackifier shall be synthetic.

The Contractor shall allow the fiber mulch to cure a minimum of 18 hours prior to watering or any storm event to ensure proper cohesion between the soil and fiber particles.

All costs for the additional tackifier added to the fiber mulch including labor, equipment, and materials shall be incidental to the contract unit price per ton for "Fiber Mulching".

The fiber mulch provided shall be from the approved product list. The approved product list for fiber mulch may be viewed at the following internet site:

http://sddot.com/business/certification/products/Default.aspx

EROSION CONTROL BLANKET

Erosion control blanket shall be **Type 3** and installed at the locations as shown in the plans and at locations determined by the Engineer during construction.

The erosion control blanket provided shall be from the SDDOT approved product list. The approved product list for erosion control blanket may be viewed at the following internet site:

http://sddot.com/business/certification/products/Default.aspx

The Contractor shall install erosion control blanket according to the detail sheets and manufacturer's recommendations.

Payment for furnishing and installing the erosion control blanket shall be at the contract unit price per square yard for "Erosion Control Blanket".

TABLE OF RIPRAP AND DRAINAGE FABRIC

Station	L/R	Class A Riprap (Ton)	Type B Drainage Fabric (SqYd)
2+14	L	20.0	30
15+20	L	14.0	23
	Totals:	34.0	53

WATERING FOR VEGETATION

The Contractor is required to provide adequate water for all newly seeded areas for a period of 45 days after installation, and until a uniform, perennial vegetative cover with a density of 70% of the native grasses has been established.

The Contractor will be required to maintain the soil and mulch in a moist condition to a depth of at least 1 inch below the surface to ensure proper growth of the seed. The water application rate should allow the water to soak into the ground without runoff. The Contractor shall use a fine spray and low pressure to avoid erosion and runoff. Multiple passes may be needed. The Contractor will be responsible to repair any areas of erosion or bare spots at no additional cost to the City.

If the Contractor fails to provide adequate water for the newly seeded areas, the Contractor will be required to reseed and maintain the area for an additional 45 days at no additional expense to the City. No payment will be made for reseeding, watering, or other associated costs during the additional 45 day maintenance period (if required).

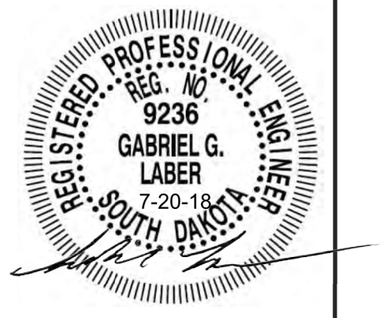
The Contractor must comply with all watering restrictions in place.

Contractor shall not utilize adjacent property owner watering system without their permission. If the Contractor chooses to do so, it will be the Contractor's responsibility to reimburse the property owner for the water used.

Watering will be incidental to the seeding bid items.

REMOVAL OF TEMP. EROSION/SEDIMENT CONTROL DEVICES

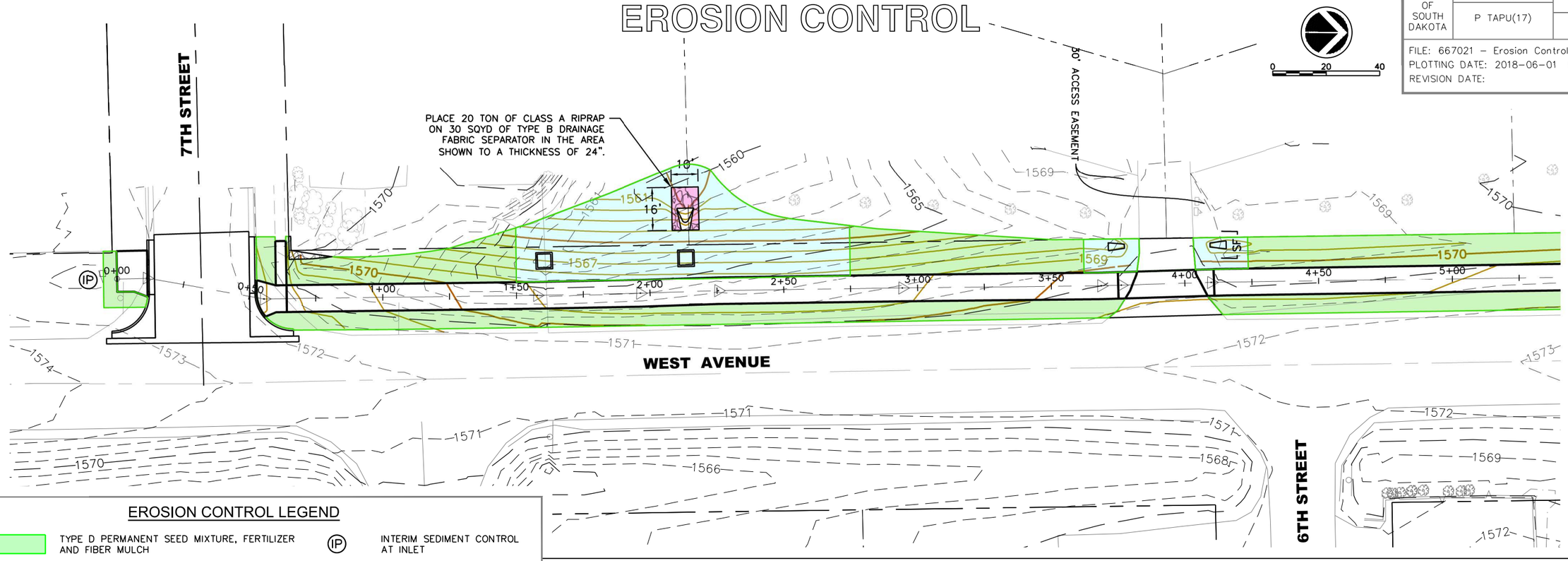
The Contractor is responsible to remove all temporary erosion control and sediment control devices when the site reaches final stabilization. The Engineer may order specific temporary erosion control and sediment control devices to remain in place past final stabilization. The Contractor will not be responsible to remove these items.



EROSION CONTROL

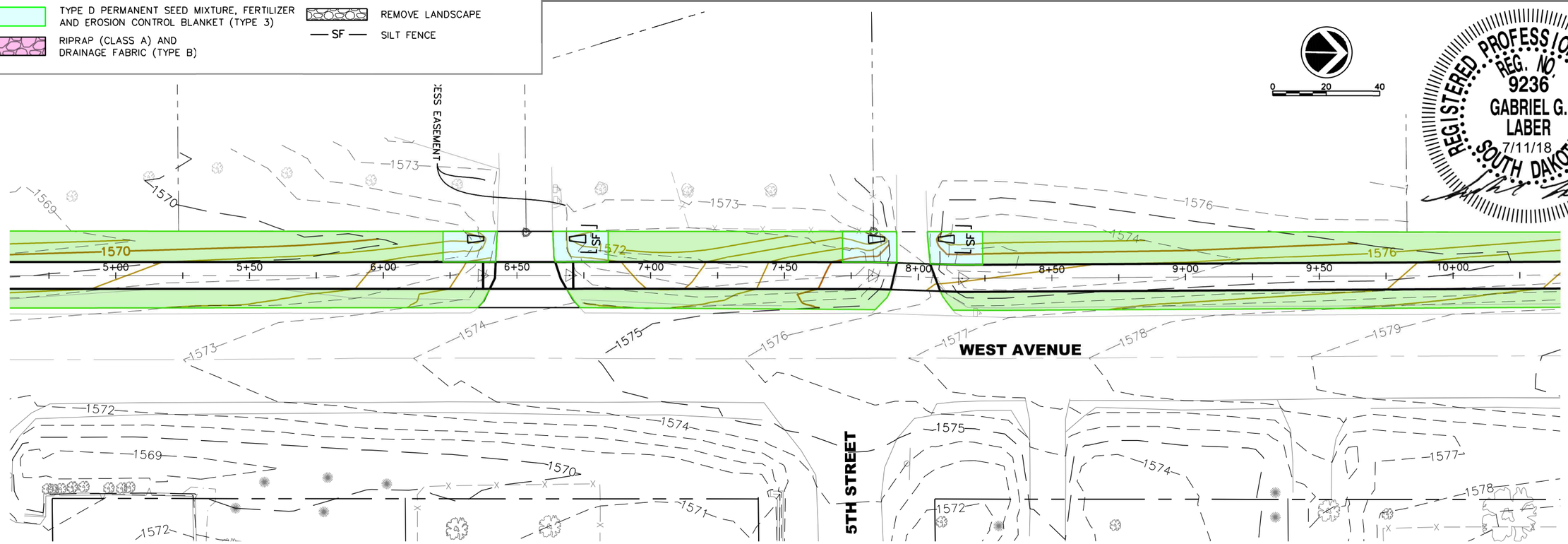
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	28	56

FILE: 667021 – Erosion Control.dwg
PLOTTING DATE: 2018-06-01 INITIALS: GGL
REVISION DATE:



EROSION CONTROL LEGEND

- TYPE D PERMANENT SEED MIXTURE, FERTILIZER AND FIBER MULCH
- TYPE D PERMANENT SEED MIXTURE, FERTILIZER AND EROSION CONTROL BLANKET (TYPE 3)
- RIPRAP (CLASS A) AND DRAINAGE FABRIC (TYPE B)
- IP — INTERIM SEDIMENT CONTROL AT INLET
- REMOVE LANDSCAPE
- SF — SILT FENCE



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9236
GABRIEL G. LABER
7/11/18
SOUTH DAKOTA

EROSION CONTROL

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	29	56

FILE: 667021 – Erosion Control.dwg
PLOTTING DATE: 2018–07–11 INITIALS: GGL
REVISION DATE: 2018–07–11

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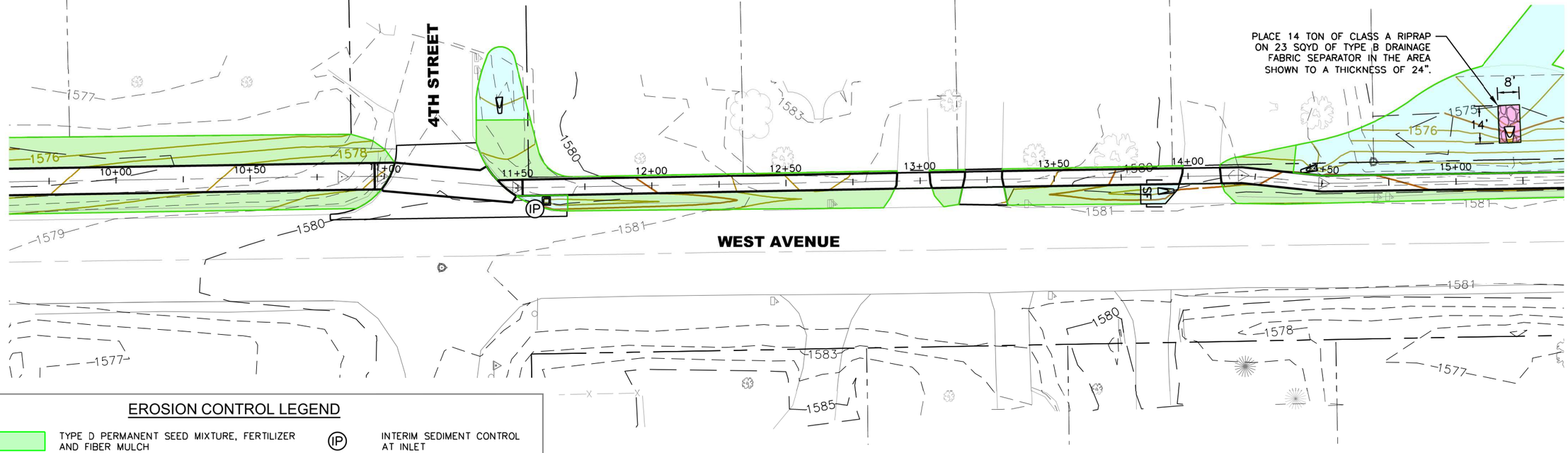

EROSION CONTROL LEGEND

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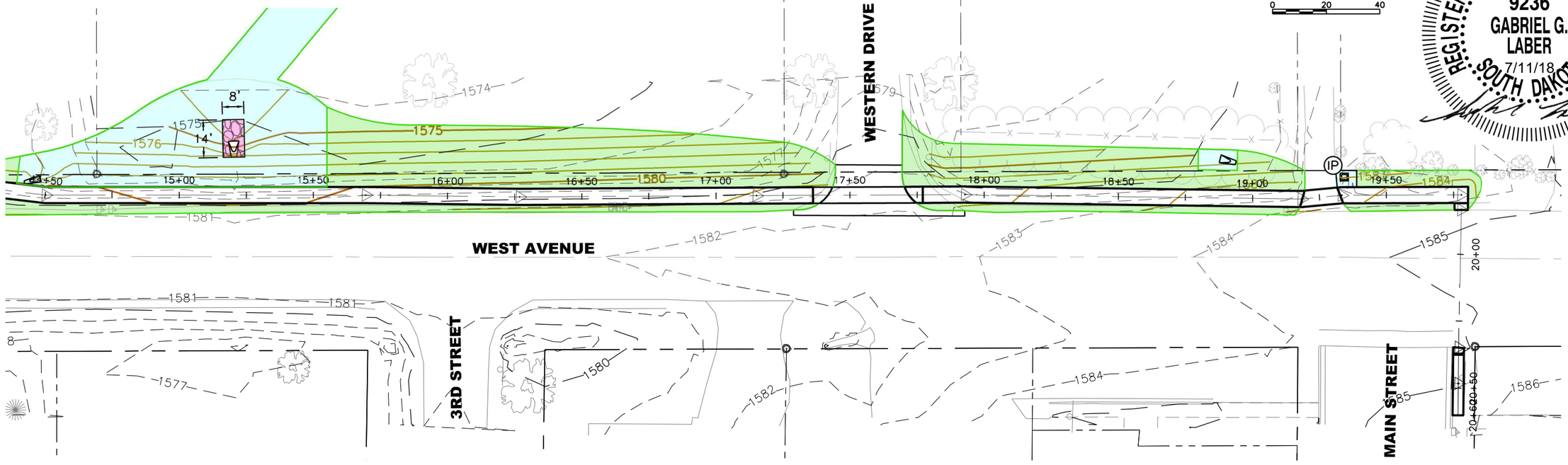
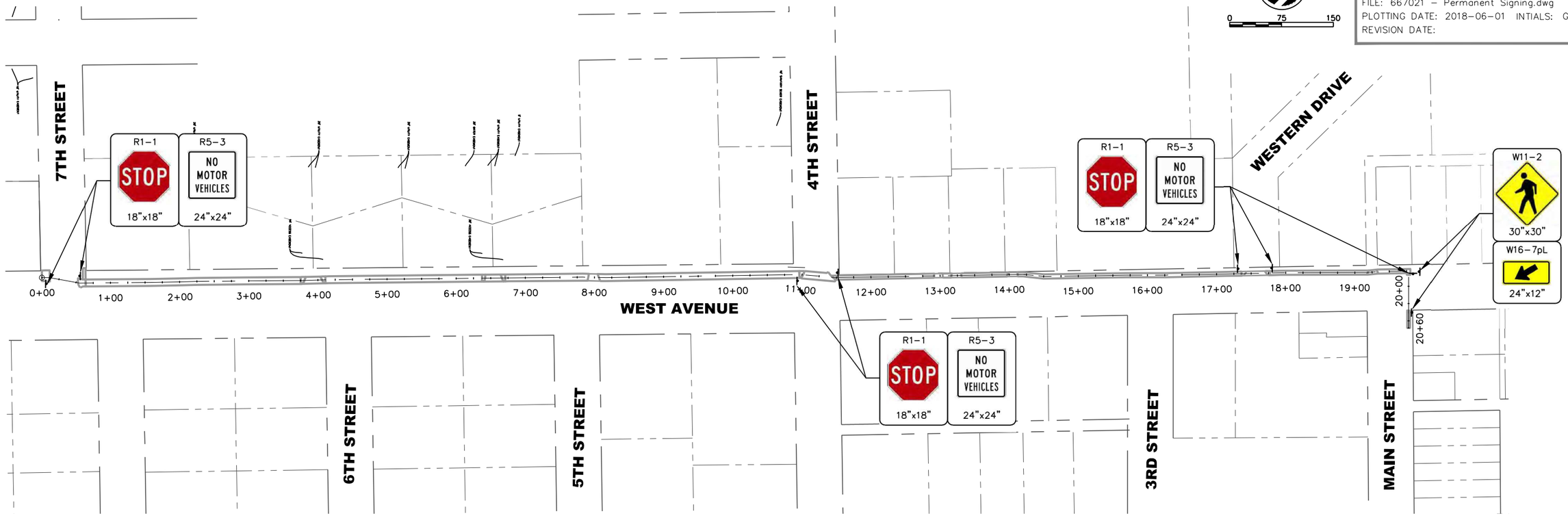


REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9236
GABRIEL G. LABER
7/11/18
SOUTH DAKOTA

PERMANENT SIGNING LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	30	56

FILE: 667021 – Permanent Signing.dwg
PLOTTING DATE: 2018-06-01 INITIALS: GGL
REVISION DATE:



NOTE:

ALL SIGNS SHALL COMPLY WITH THE MOST CURRENT VERSION OF THE MUTCD.

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REG. NO. 9236
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7/11/18
SOUTH DAKOTA

PERMANENT SIGNING LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	31	56

FILE: 667021 – Permanent Signing.dwg
PLOTTING DATE: 2018–06–28 INTIALS: GGL
REVISION DATE: **06–28–2018**

PERMANENT SIGNING TABLE

LOCATION	DESCRIPTION	SIGN CODE	SUPER/VERY HIGH INTENSITY TRAFFIC SIGN AREA (SQFT)	HIGH INTENSITY TRAFFIC SIGN AREA (SQFT)	2" SQ. TUBE POST (FT)
0+05.2 - 9.0'R	18"x18" STOP SIGN	R1-1	2.3		7
	24"x24" NO MOTOR VEHICLES	R5-3		4.0	7
0+54.6 - 10.0'L	18"x18" STOP SIGN	R1-1	2.3		7
	24"x24" NO MOTOR VEHICLES	R5-3		4.0	7
10+92.6 - 9.0'R	18"x18" STOP SIGN	R1-1	2.3		7
	24"x24" NO MOTOR VEHICLES	R5-3		4.0	7
11+52.6 - 7.0'L	18"x18" STOP SIGN	R1-1	2.3		7
	24"x24" NO MOTOR VEHICLES	R5-3		4.0	7
17+32.4 - 7.0'L	18"x18" STOP SIGN	R1-1	2.3		7
	24"x24" NO MOTOR VEHICLES	R5-3		4.0	7
17+80.8 - 7.0'L	18"x18" STOP SIGN	R1-1	2.3		7
	24"x24" NO MOTOR VEHICLES	R5-3		4.0	7
19+80.2 - 7.0'L	30"x30" PEDESTRIAN WARNING	R11-2	6.3		12.5
	24"x12" ARROW	W16-7PL	2.0		
19+81.2 - 7.0'L	18"x18" STOP SIGN	R1-1	2.3		7
	24"x24" NO MOTOR VEHICLES	R5-3		4.0	7
20+38.3 - 4.0'L	30"x30" PEDESTRIAN WARNING	R11-2	6.3		12.5
	24"x12" ARROW	W16-7PL	2.0		
		TOTAL:	32.7	28.0	123

REGISTERED PROFESSIONAL ENGINEER
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7/11/18
SOUTH DAKOTA

CROSS SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	32	56

FILE: 667021 – Cross Sections.dwg
PLOTTING DATE: 2018-06-01 INTIALS: GGL
REVISION DATE:

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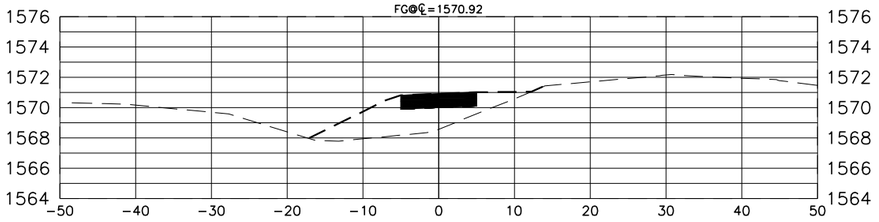

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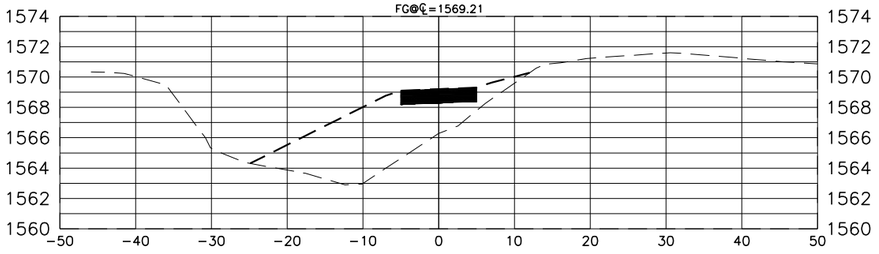

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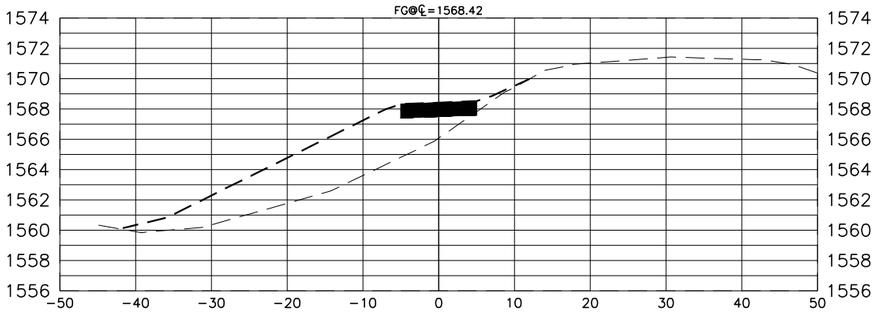

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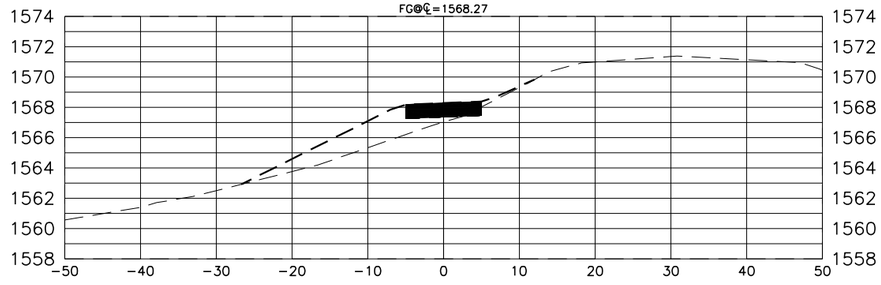

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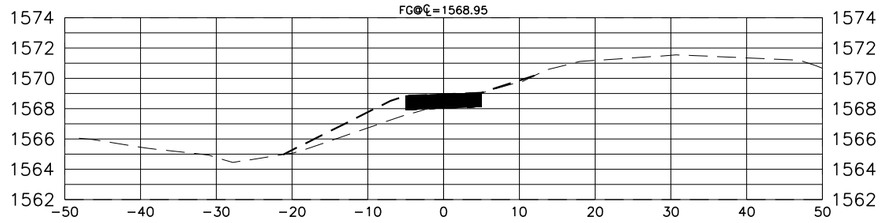

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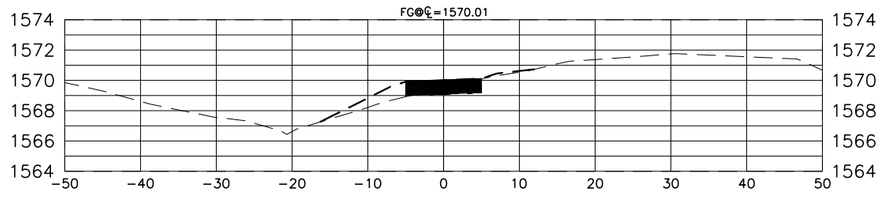

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9236
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7/11/18
SOUTH DAKOTA

CROSS SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	33	56

FILE: 667021 – Cross Sections.dwg
PLOTTING DATE: 2018-06-01 INTIALS: GGL
REVISION DATE:

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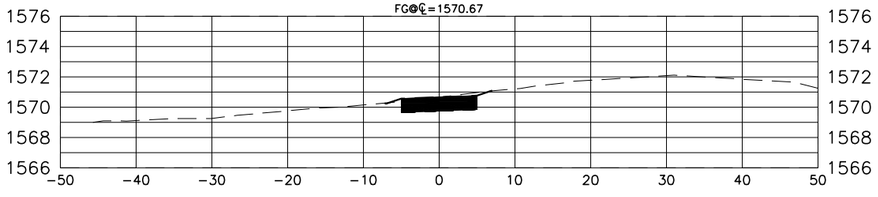

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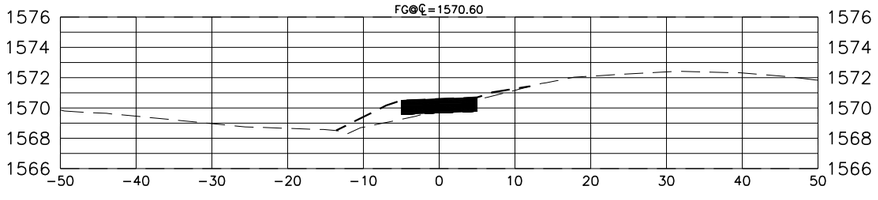

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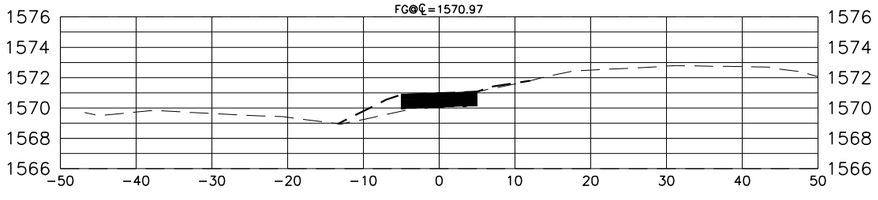

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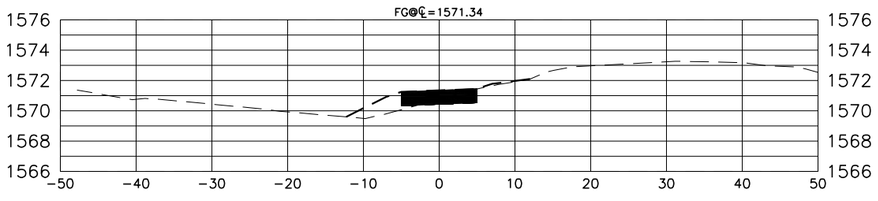

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GABRIEL G. LABER
7/11/18
SOUTH DAKOTA

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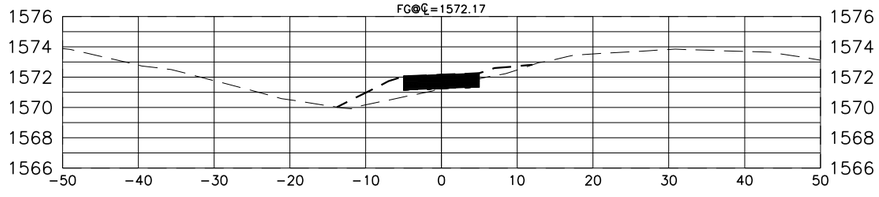

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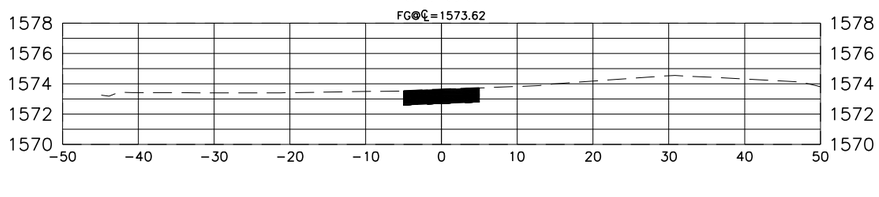

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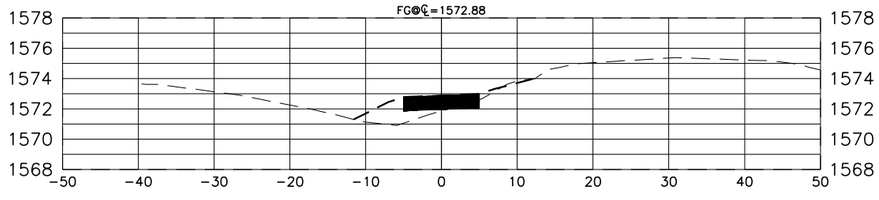

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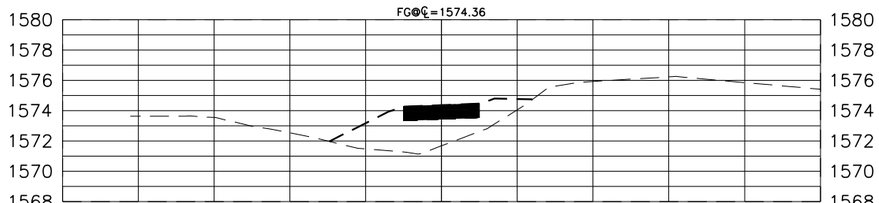

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
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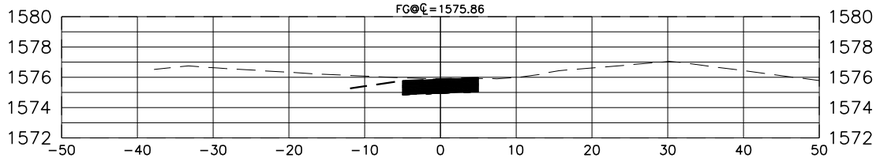
FILE: 667021 – Cross Sections.dwg
PLOTTING DATE: 2018–06–01 INTIALS: GGL
REVISION DATE:

CROSS SECTIONS

8+00



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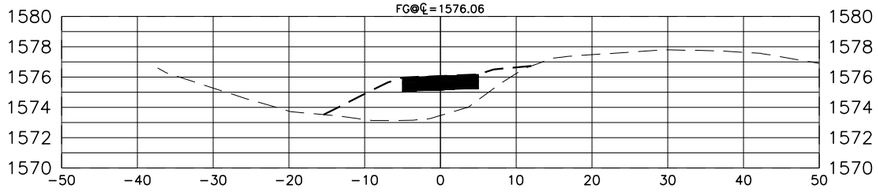

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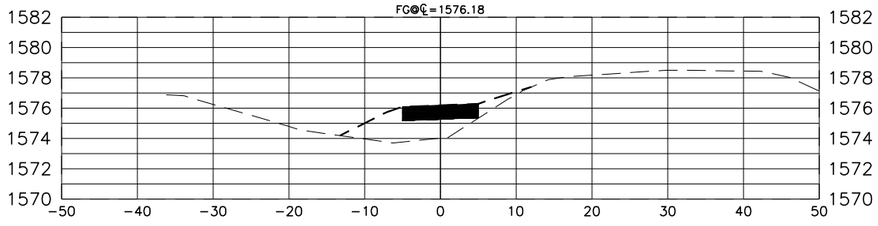

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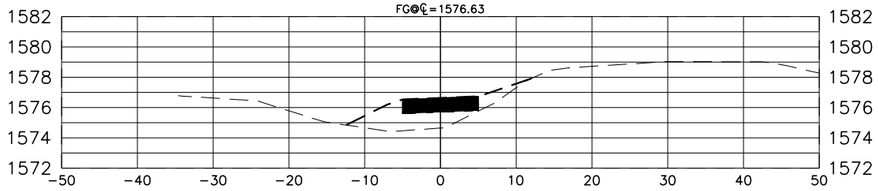

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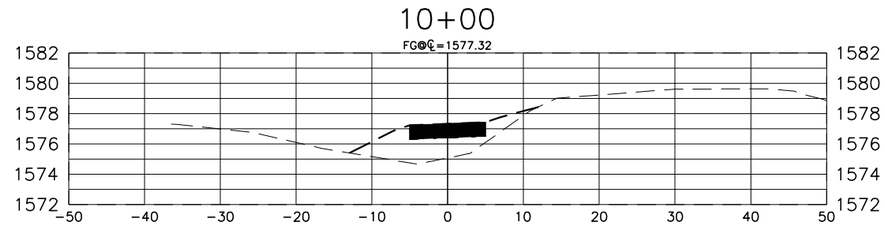

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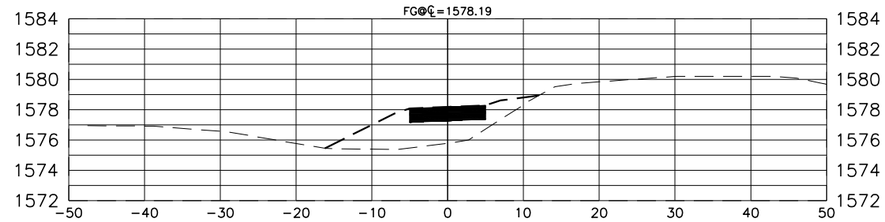

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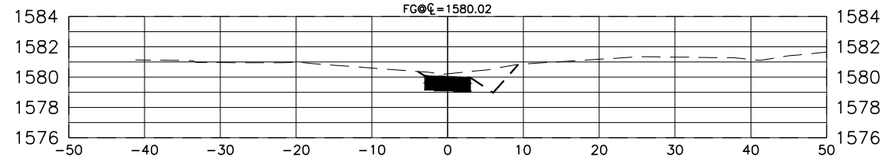

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9236
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7/11/18
SOUTH DAKOTA

CROSS SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	35	56

FILE: 667021 – Cross Sections.dwg
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REVISION DATE:

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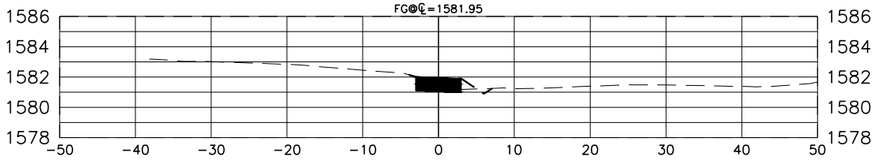

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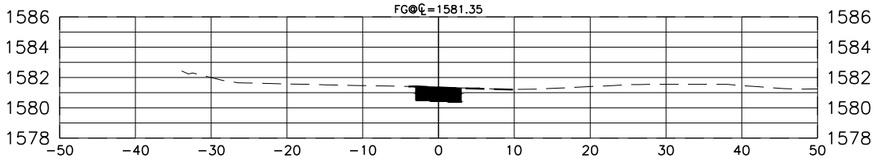

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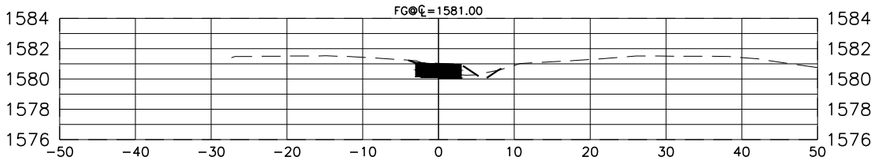

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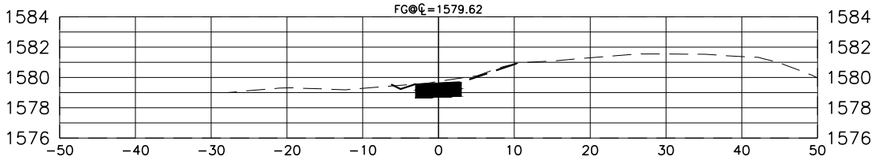

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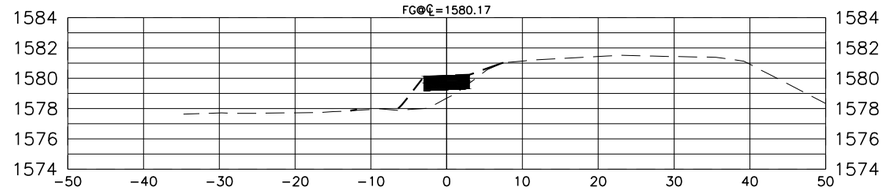

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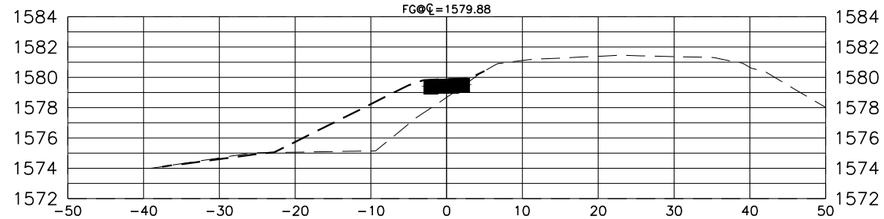

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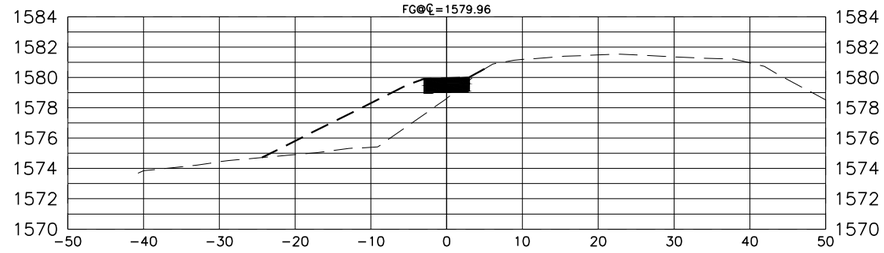

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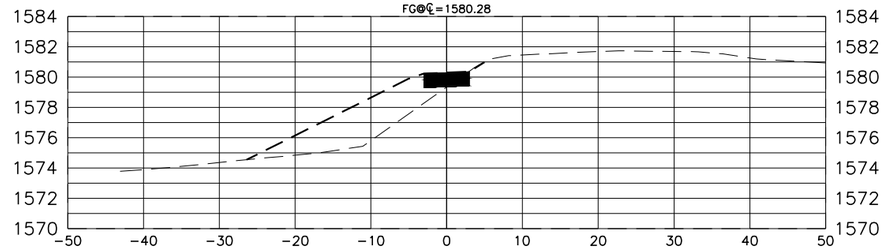


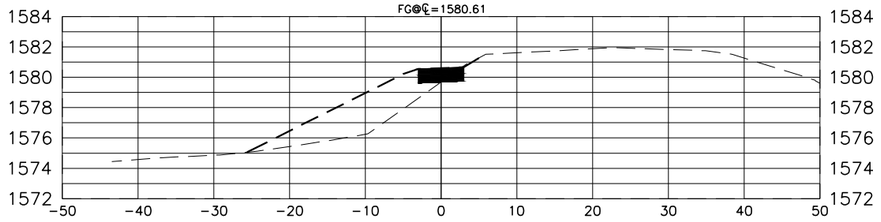
REGISTERED PROFESSIONAL ENGINEER
REG. NO.
9236
GABRIEL G.
LABER
7/11/18
SOUTH DAKOTA

CROSS SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	36	56

FILE: 667021 – Cross Sections.dwg
PLOTTING DATE: 2018–06–01 INTIALS: GGL
REVISION DATE:

16+50



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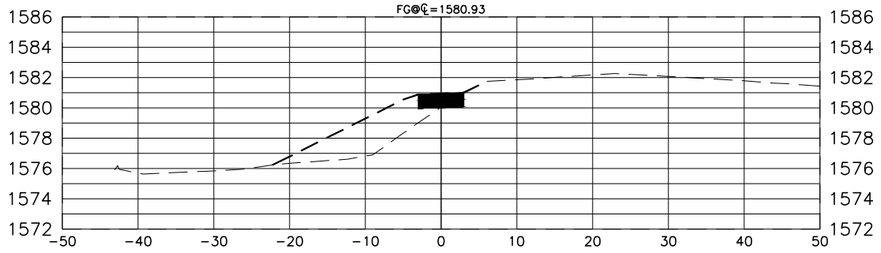

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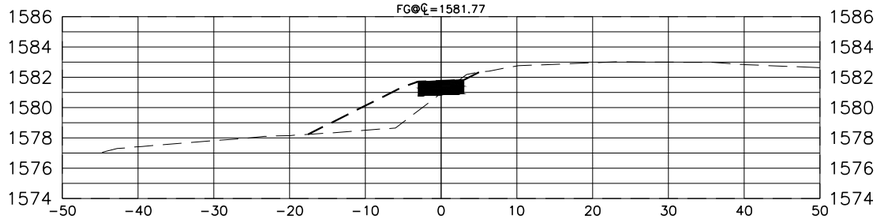

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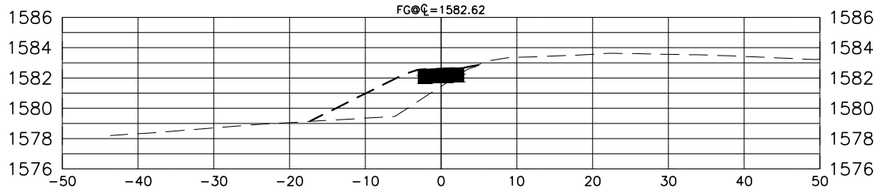

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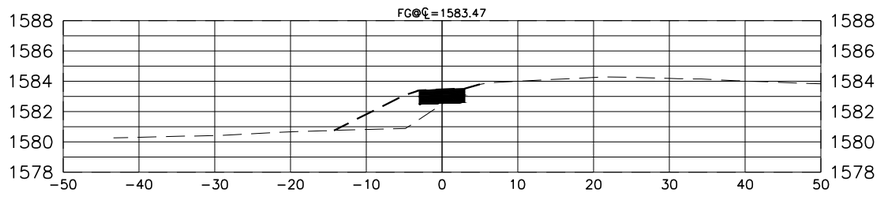

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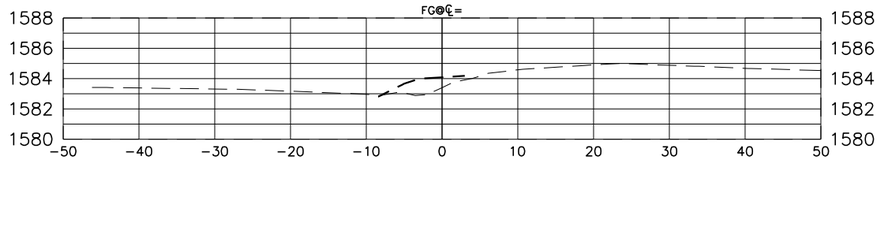

REGISTERED PROFESSIONAL ENGINEER
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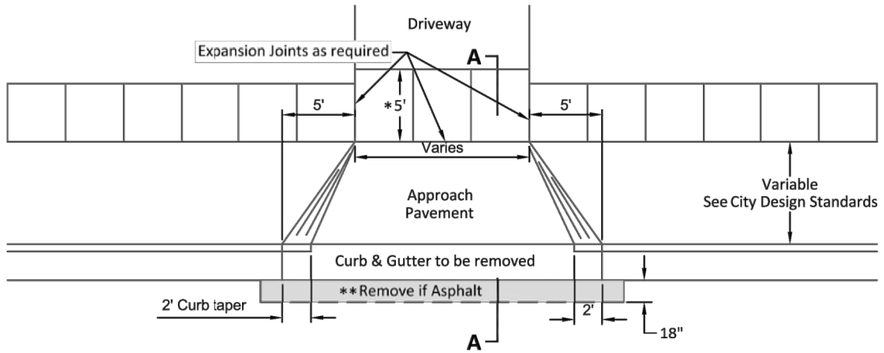
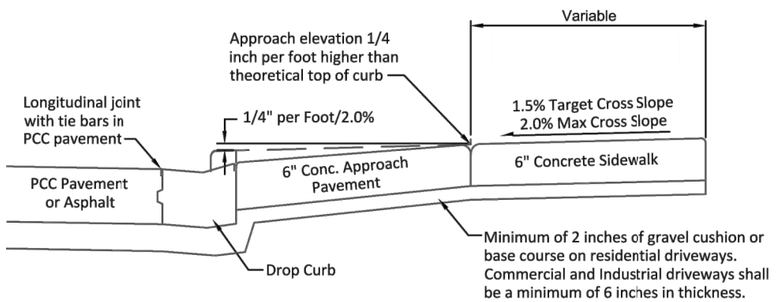
GABRIEL G. LABER
7/11/18
SOUTH DAKOTA

DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	37	56

FILE: 667021 – Details.dwg
PLOTTING DATE: 2018-06-28 INITIALS: GGL
REVISION DATE:





SECTION VIEW A-A

GENERAL NOTES

*On new construction, the sidewalk must be a minimum of 5' wide through the driveway approach to accommodate passing space requirements. When the adjoining sidewalk is less than 5' wide, the additional width through the driveway approach shall be located on the building side of the sidewalk, unless insufficient right of way exists to prevent the sidewalk from being installed entirely in the public right of way. In these cases, install the additional sidewalk width on the street side of the sidewalk

Permits are required before beginning construction or alteration of any driveway for any project not bid by the City.

The curb and gutter shall be taken out to the nearest construction joint when the joint is within 4' of the end of that driveway.

Full depth sawing is required when the curb and gutter is not removed at a construction joint. A clean, neat, and vertical cut through the curb section is required.

Sidewalks within the driveway limits shall have a minimum thickness of 6" unless otherwise specified.

Contraction joints shall be formed in the approach pavement by means of a suitable grooving tool. These joints shall have a depth of at least one quarter the thickness of the concrete approach pavement.

2" gravel cushion or base course is required under the approach pavement and will be paid at contract unit price per ton unless otherwise specified.

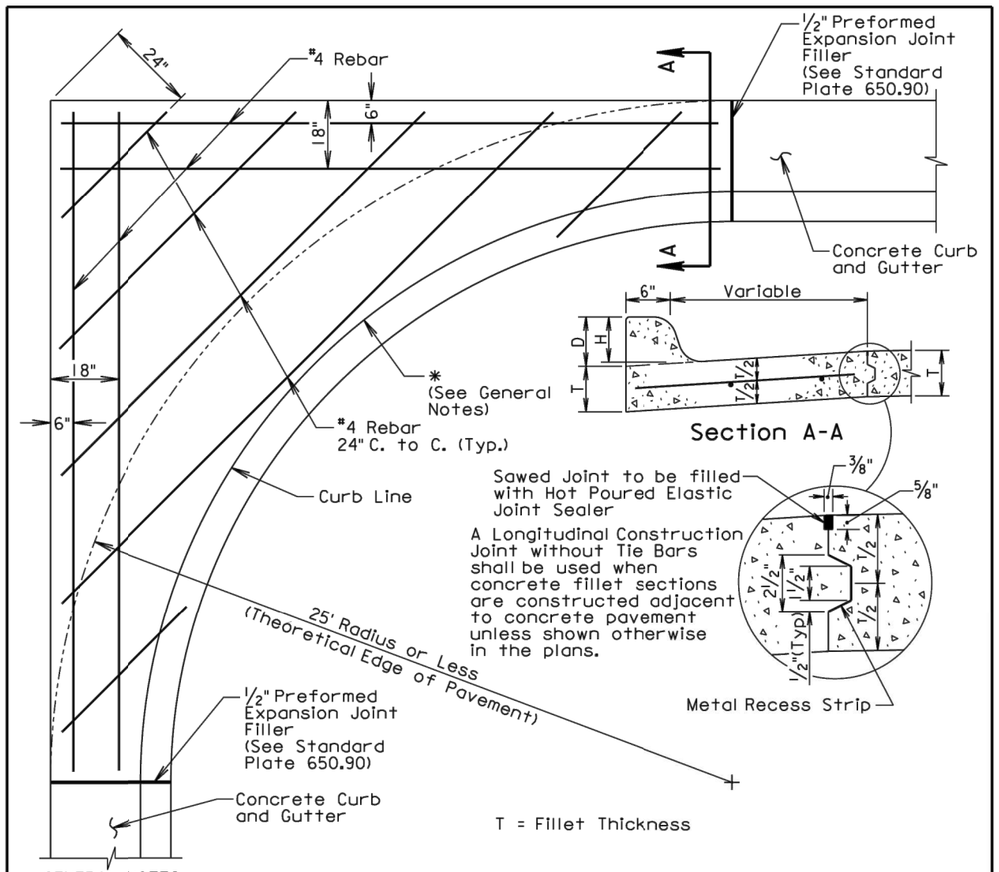
The "Concrete Approach Pavement" will be measured and paid for at the contract unit price per square yard, such price being full compensation for all labor, materials and incidentals in connection with constructing the same.

The concrete in "Concrete Approach Pavement" shall comply with the requirements of the standard specifications for class M-6 concrete.

**Subject to approval of the City Engineer, in new developments or other areas where the asphalt street is new it may be possible to install the drop curb adjacent to the driveway without removing the 18" of asphalt if the asphalt is in good condition and free of any spalling as to allow the drop curb to be installed straight and true.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9236
GABRIEL G. LABER
7/11/18
SOUTH DAKOTA

CONCRETE APPROACH PAVEMENT



GENERAL NOTES:

*If a curb ramp is constructed adjacent to a PCC fillet section, the curb will need to be modified. Refer to the corresponding curb ramp standard plate or other special details in the plans for modification of the PCC fillet section.

Dimensions D, H, and T shall conform to those shown on the appropriate curb and gutter standard plate.

All rebar shall be in conformance with Sections 480 and 1010 of the Specifications. All rebar shall have a minimum of 3" clear cover.

Class M6 Concrete shall be used in construction of the fillets.

The concrete curb shall be monolithic with the concrete fillet. No separate payment for this curb will be made as the curb is considered a part of the fillet.

Joints shall be constructed at 10' intervals except when fillets are constructed adjacent to PCC Pavement. If there is adjacent PCC Pavement the joints shall be extended from edge of pavement through the fillet section as directed by the Engineer.

The cost for all materials, labor, and incidentals necessary to construct the PCC fillet section with curb and gutter shall be incidental to the contract unit price per square yard for the corresponding PCC fillet section bid item.

June 26, 2015

Published Date: 2nd Qtr. 2018	SDDOT	PCC FILLET SECTION WITH TYPE B CURB AND GUTTER	PLATE NUMBER 380.16
			Sheet 1 of 1

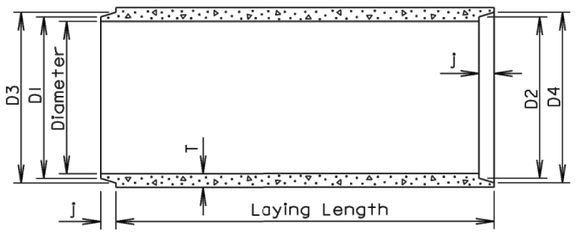
DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	38	56

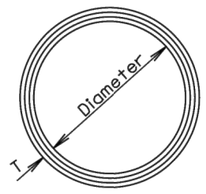
FILE: 667021 – Details.dwg
PLOTTING DATE: 2018-06-28 INITIALS: GGL
REVISION DATE:

TOLERANCES IN DIMENSIONS

Diameter: ±1.5% for 24" Dia. or less and ±1% or 3/8" whichever is more for 27" Dia. or greater.
Diameters at joints: ± 3/16" for 30" Dia. or less and ± 1/4" for 36" or greater.
Length of joint (j): ± 1/4".
Wall thickness (T): not less than design T by more than 5% or 3/16", whichever is greater.
Laying length: shall not underrun by more than 1/2".



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

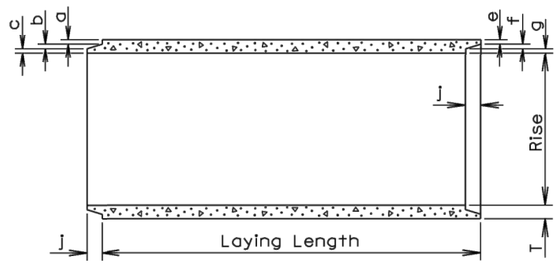
Construction of R. C. P. shall conform to the requirements of Section 990 of the Specifications.

Not more than 2 four-foot sections shall be permitted near the ends of any culvert. Four-foot lengths shall be used only to secure the required length of culvert.

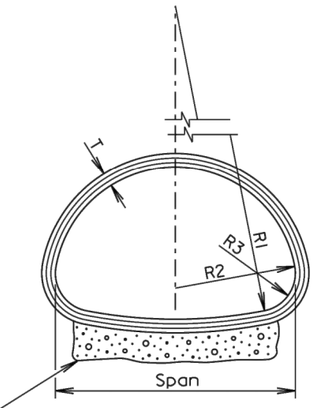
Diam. (in.)	Approx. Wt./Ft. (lb.)	T (in.)	J (in.)	D1 (in.)	D2 (in.)	D3 (in.)	D4 (in.)
12	92	2	1 3/4	13 1/4	13 5/8	13 7/8	14 1/4
15	127	2 1/4	2	16 1/2	16 7/8	17 1/4	17 5/8
18	168	2 1/2	2 1/4	19 5/8	20	20 3/8	20 3/4
21	214	2 3/4	2 1/2	22 7/8	23 1/4	23 3/4	24 1/8
24	265	3	2 3/4	26	26 3/8	27	27 3/8
27	322	3 1/4	3	29 1/4	29 5/8	30 1/4	30 5/8
30	384	3 1/2	3 1/4	32 3/8	32 3/4	33 1/2	33 7/8
36	524	4	3 3/4	38 3/4	39 1/4	40	40 1/2
42	685	4 1/2	4	45 1/8	45 5/8	46 1/2	47
48	867	5	4 1/2	51 1/2	52	53	53 1/2
54	1070	5 1/2	4 1/2	57 7/8	58 3/8	59 3/8	59 7/8
60	1296	6	5	64 1/4	64 3/4	66	66 1/2
66	1542	6 1/2	5 1/2	70 5/8	71 1/8	72 1/2	73
72	1810	7	6	77	77 1/2	79	79 1/2
78	2098	7 1/2	6 1/2	83 3/8	83 7/8	85 5/8	86 1/8
84	2410	8	7	89 3/4	90 1/4	92 1/8	92 5/8
90	2740	8 1/2	7	95 3/4	96 1/4	98 1/8	98 5/8
96	2950	9	7	102 1/8	102 5/8	104 1/2	105
102	3075	9 1/2	7 1/2	109	109 1/2	111 1/2	112
108	3870	10	7 1/2	115 1/2	116	118	118 1/2

June 26, 2015

Published Date: 2nd Qtr. 2018	SDDOT	REINFORCED CONCRETE PIPE	PLATE NUMBER 450.01
			Sheet 1 of 1



LONGITUDINAL SECTION



END VIEW

TOLERANCES IN DIMENSIONS

Radial dimensions at joints: ± 1/8" for 65" span or less and ± 1/4" for longer spans.
Rise and Span: ±2% of tabular values.
Length of Joint (J): ± 1/4".
Wall thickness (T): not less than design T by more than 5% or 3/16", whichever is greater.
Laying length: shall not underrun by more than 1/2".

Gravel Bedding Material shall be supplied for 102" to 169" spans. It shall be placed to a thickness of 6" (Min.) x 85% of the Span x Length of culvert and shall conform to the gradation requirements for gravel surfacing except material may be screened or may be plan provided material.

* Size (in.)	Approx. Wt./Ft. (lb.)	Rise (in.)	Span (in.)	T (in.)	a (in.)	b (in.)	c (in.)	j (in.)	e (in.)	f (in.)	g (in.)	R1 (in.)	R2 (in.)	R3 (in.)
18	170	13 1/2	22	2 1/2	1 3/8	3/8	3/4	2	1 1/8	3/8	1	27 1/2	13 3/4	5 1/4
24	320	18	28 1/2	3 1/2	1 5/8	1/2	1 3/8	3	1 3/8	1/2	1 5/8	40 11/16	14 3/4	4 5/8
30	450	22 1/2	36 1/4	4	1 13/16	5/8	1 9/16	3 1/2	1 9/16	5/8	1 13/16	51	18 3/4	6 1/8
36	600	26 5/8	43 3/4	4 1/2	2	3/4	1 3/4	4	1 3/4	3/4	2	62	22 1/2	6 1/2
42	740	31 5/16	51 1/8	4 1/2	2	3/4	1 3/4	4	1 3/4	3/4	2	73	26 1/4	7 3/4
48	890	36	58 1/2	5	2 1/4	3/4	2	5	2	3/4	2 1/4	84	30	8 7/8
54	1100	40	65	5 1/2	2 1/2	3/4	2 1/4	5	2 1/4	3/4	2 1/2	92 1/2	33 3/8	10
60	1400	45	73 1/2	6	3 5/16	3/4	1 15/16	5	2 3/4	3/4	2 1/2	105	37 1/2	11
72	1900	54	88	7	3 13/16	1	2 3/16	6	3 1/4	1	2 3/4	126	45	13 5/16
84	2500	62	102	8	4 1/8	1	2 7/8	6	3 1/2	1	3 1/2	162 1/2	52	14 1/2
96	3300	78	122 3/8	9	4 1/2	1	3 1/2	7	4	1	4	218	62	20
108	4200	88	138 1/2	10	5	1	4	7	4 1/2	1	4 1/2	269	70	22
120	5100	96 7/8	154	11	5 1/2	1	4 1/2	7	5	1	5	301 3/8	78	24
132	5100	106 1/2	168 3/4	10		1	4	7	4 1/2	1	4 1/2	329	85 5/8	26 7/8

* Equivalent Diameter of Circular R. C. P.

GENERAL NOTES:

Construction of R.C.P. Arch shall conform to the requirements of Section 990 of the Specifications. Not more than 2 four-foot sections shall be permitted near the ends of any culvert. Four-foot lengths shall be used only to secure the required length of culvert.

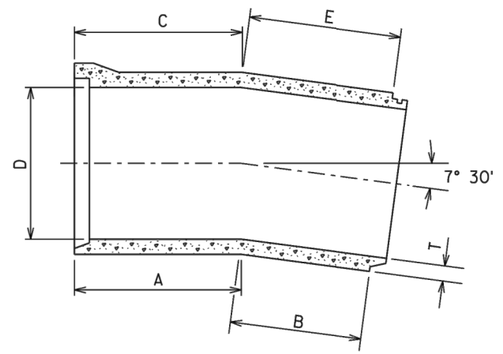
June 26, 2015

Published Date: 2nd Qtr. 2018	SDDOT	REINFORCED CONCRETE PIPE ARCH	PLATE NUMBER 450.02
			Sheet 1 of 1

DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	39	56

FILE: 667021 – Details.dwg
PLOTTING DATE: 2018–06–28 INTIALS: GGL
REVISION DATE: **06–28–2018**



GENERAL NOTE:

Centerline laying length: 4'-0
Radius of Curve: 30.5'

D (in.)	T (in.)	A (in.)	B (in.)	C (in.)	E (in.)	Weight of Section (lbs.)
12	2	$36\frac{15}{32}$	$10\frac{15}{32}$	$37\frac{11}{32}$	$11\frac{11}{32}$	368
15	$2\frac{1}{4}$	$36\frac{1}{2}$	$10\frac{1}{4}$	$37\frac{3}{4}$	$11\frac{1}{2}$	508
18	$2\frac{1}{2}$	$24\frac{1}{2}$	22	26	$23\frac{1}{2}$	672
21	$2\frac{3}{4}$	$24\frac{1}{2}$	$21\frac{3}{4}$	$26\frac{1}{4}$	$23\frac{1}{2}$	856
24	3	$25\frac{1}{32}$	$21\frac{1}{32}$	$26\frac{31}{32}$	$22\frac{31}{32}$	1060
27	$3\frac{1}{4}$	$25\frac{1}{32}$	$20\frac{25}{32}$	$27\frac{1}{32}$	$22\frac{31}{32}$	1288
30	$3\frac{1}{2}$	$25\frac{1}{32}$	$20\frac{17}{32}$	$27\frac{15}{32}$	$22\frac{31}{32}$	1536
33	$3\frac{3}{4}$	$24\frac{15}{16}$	$20\frac{7}{16}$	$27\frac{9}{16}$	$23\frac{1}{16}$	1808
36	4	$24\frac{13}{16}$	$20\frac{5}{16}$	$27\frac{11}{16}$	$23\frac{3}{16}$	2096
42	$4\frac{1}{2}$	$24\frac{27}{32}$	$19\frac{27}{32}$	$28\frac{5}{32}$	$23\frac{5}{32}$	2740
48	5	$24\frac{19}{32}$	$19\frac{19}{32}$	$28\frac{13}{32}$	$23\frac{13}{32}$	3468
54	$5\frac{1}{2}$	$24\frac{5}{8}$	$19\frac{1}{8}$	$29\frac{11}{32}$	$23\frac{3}{8}$	4280
60	6	$24\frac{21}{32}$	$18\frac{21}{32}$	$29\frac{11}{32}$	$23\frac{11}{32}$	5184
66	$6\frac{1}{2}$	$24\frac{11}{16}$	$18\frac{3}{16}$	$29\frac{13}{16}$	$23\frac{5}{16}$	6168
72	7	$24\frac{1}{8}$	$18\frac{1}{8}$	$29\frac{7}{8}$	$23\frac{7}{8}$	7240
84	8	$24\frac{1}{4}$	$17\frac{1}{4}$	$30\frac{3}{4}$	$23\frac{3}{4}$	9640
96	9	$23\frac{5}{16}$	$17\frac{5}{16}$	$30\frac{11}{16}$	$24\frac{11}{16}$	12400

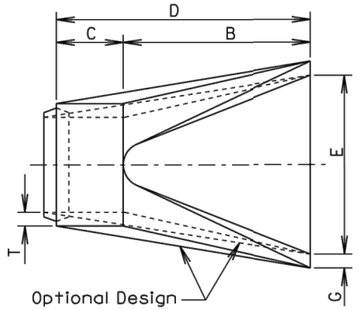
March 31, 2000

Published Date: 2nd Qtr. 2018	SDDOT	***REINFORCED CONCRETE PIPE LONG RADIUS BEND***	***PLATE NUMBER 450.04*** *Sheet 1 of 1*

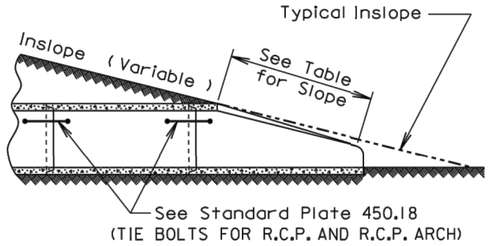
DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	40	56

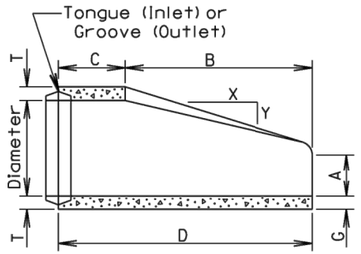
FILE: 667021 – Details.dwg
PLOTTING DATE: 2018–06–28 INTIALS: GGL
REVISION DATE: **06–28–2018**



TOP VIEW



SLOPE DETAIL

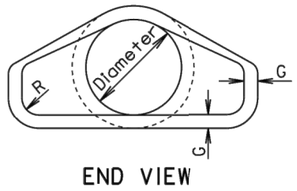


LONGITUDINAL SECTION

GENERAL NOTES:

Lengths of concrete pipe shown on plan sheets are between flared ends only.

Construction of R.C.P. Flared End shall conform to the requirements of Section 990 of the Specifications.

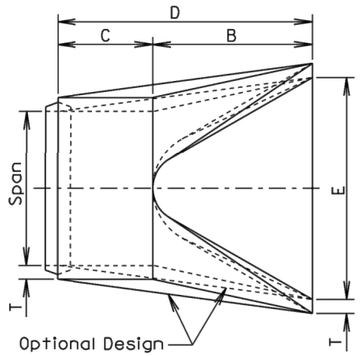


END VIEW

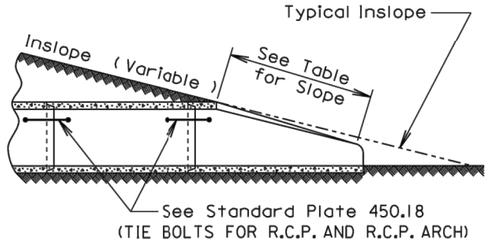
Dia. (in.)	Approx. Wt. of Section (lbs.)	Approx. Slope (X to Y)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	G (in.)	R (in.)
12	530	2.4: 1	2	4	24	48 7/8	72 7/8	24	2	1 1/2
15	740	2.4: 1	2 1/4	6	27	46	73	30	2 1/4	1 1/2
18	990	2.3: 1	2 1/2	9	27	46	73	36	2 1/2	1 1/2
21	1280	2.4: 1	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	1 1/2
24	1520	2.5: 1	3	9 1/2	43 1/2	30	73 1/2	48	3	1 1/2
27	1930	2.5: 1	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	1 1/2
30	2190	2.5: 1	3 1/2	12	54	19 3/4	73 3/4	60	3 1/2	1 1/2
36	4100	2.5: 1	4	15	63	34 3/4	97 3/4	72	4	1 1/2
42	5380	2.5: 1	4 1/2	21	63	35	98	78	4 1/2	1 1/2
48	6550	2.5: 1	5	24	72	26	98	84	5	1 1/2
54	8240	2: 1	5 1/2	27	65	33 1/4	98 1/4	90	5 1/2	1 1/2
60	8730	1.9: 1	6	35	60	39	99	96	5	1 1/2
66	10710	1.7: 1	6 1/2	30	72	27	99	102	5 1/2	1 1/2
72	12520	1.8: 1	7	36	78	21	99	108	6	1 1/2
78	14770	1.8: 1	7 1/2	36	90	21	111	114	6 1/2	1 1/2
84	18160	1.6: 1	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2
90	20900	1.5: 1	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	6

June 26, 2015

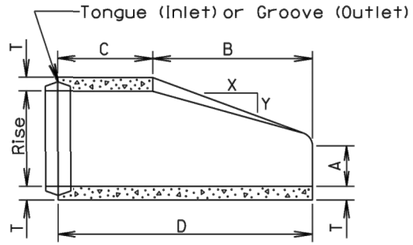
Published Date: 2nd Qtr. 2018	SDDOT	R. C. P. FLARED ENDS	PLATE NUMBER 450.10
			Sheet 1 of 1



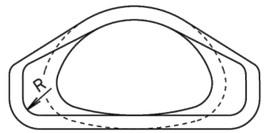
TOP VIEW



SLOPE DETAIL



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

Lengths of concrete pipe shown on plan sheets are between flared ends only.

Construction of R. C. P. Arch Flared End shall conform to the requirements of Section 990 of the Specifications.

* Size (in.)	Approximate Weight of Section (lbs.)	Rise (in.)	Span (in.)	Slope (X:Y)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	R (in.)
18	1100	13 1/2	22	3: 1	2 1/2	7	27	45	72	36	2
24	1750	18	28 1/2	3: 1	3 1/2	8 1/2	39	33	72	48	3
30	3300	22 1/2	36 1/4	3: 1	4	9 1/2	50	46	96	60	3
36	4350	26 5/8	43 3/4	3: 1	4 1/2	1 1 1/8	60	36	96	72	6
42	5250	31 5/16	51 1/8	3: 1	4 1/2	15 13/16	60	36	96	78	6
48	6400	36	58 1/2	3: 1	5	21	60	36	96	84	6
54	7850	40	65	3: 1	5 1/2	25 1/2	60	36	96	90	6
60	9500	45	73 1/2	3: 1	6	31	60	36	96	96	6
72	13550	54	88	2: 1	7	31	60	39	99	120	6
84	17950	62	102	2: 1	8	28 1/2	83	19	102	144	6

*Equivalent Diameter of Circular R. C. P.

June 26, 2015

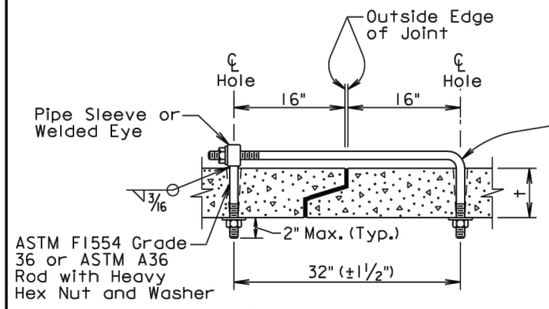
Published Date: 2nd Qtr. 2018	SDDOT	R. C. P. ARCH FLARED ENDS	PLATE NUMBER 450.11
			Sheet 1 of 1

DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	41	56

FILE: 667021 – Details.dwg
PLOTTING DATE: 2018–06–28 INTIALS: GGL
REVISION DATE: **06–28–2018**

Wall "t" (in.)	Rod Dia. (in.)	Pipe Sleeve Dia. (nominal)
≤ 3¼	⅝	¾
3½–6½	¾	1
≥ 7	1	1¼



ADJUSTABLE EYE BOLT TIE

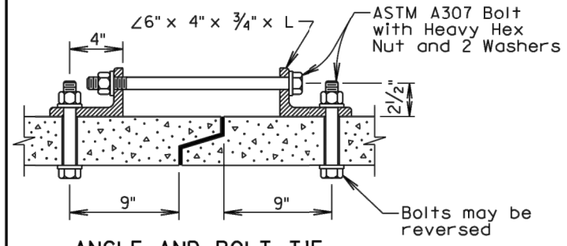
GENERAL NOTES:

Tie bolts shall conform to ASTM F1554 Grade 36 or ASTM A36. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Pipe Sleeve shall conform to ASTM A500 or A53, Grade B.

Galvanize adjustible eye bolt tie assembly in accordance with ASTM A153.

Pipe Dia. (in.)	"L" (in.)	Bolt Dia. (in.)
≤ 48	4	¾
> 48	6	1



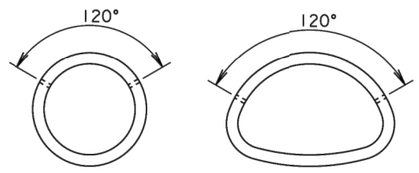
ANGLE AND BOLT TIE

GENERAL NOTES:

Angles shall conform to ASTM A36.

Bolts shall conform to ASTM A307. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Galvanize angles, bolts, nuts, and washers in accordance with ASTM A153.



END VIEW "CIRCULAR"

END VIEW "ARCH"

GENERAL NOTES:

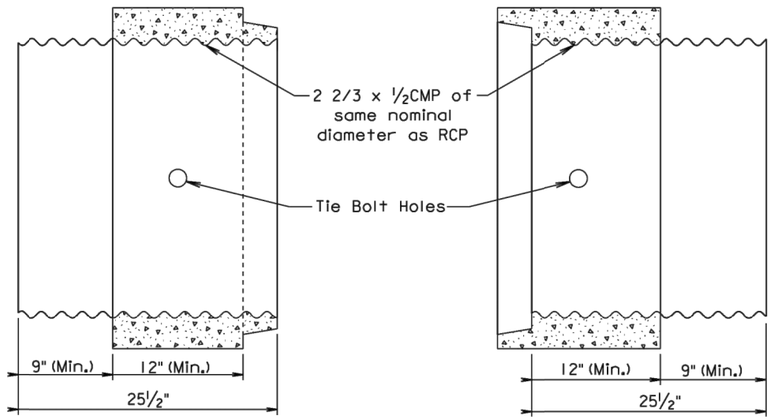
In lieu of the tie bolts detailed above other types of tie bolt connections may be installed as approved by the Office of Bridge Design.

All pipe sections of R.C.P. and R.C.P. Arch shall be tied with tie bolts except for pipe located between drop inlets, manholes, and junction boxes. All pipe sections of pipes that only enter or exit drop inlets, manhole, and junction boxes shall be tied with tie bolts.

There will be no separate measurement or payment for the tie bolts. The cost for furnishing and installing the tie bolts shall be incidental to the contract unit price per foot for the corresponding bid item for R.C.P. or R.C.P. Arch.

February 28, 2013

Published Date: 2nd Qtr. 2018	SDDOT	TIE BOLTS FOR R.C.P. AND R.C.P. ARCH	PLATE NUMBER 450.18
			Sheet 1 of 1



INLET
(CMP to RCP Transition)

OUTLET
(RCP to CMP Transition)

GENERAL NOTE:

Arch pipe transitions shall be fabricated similar to the round transition shown above.

March 31, 2000

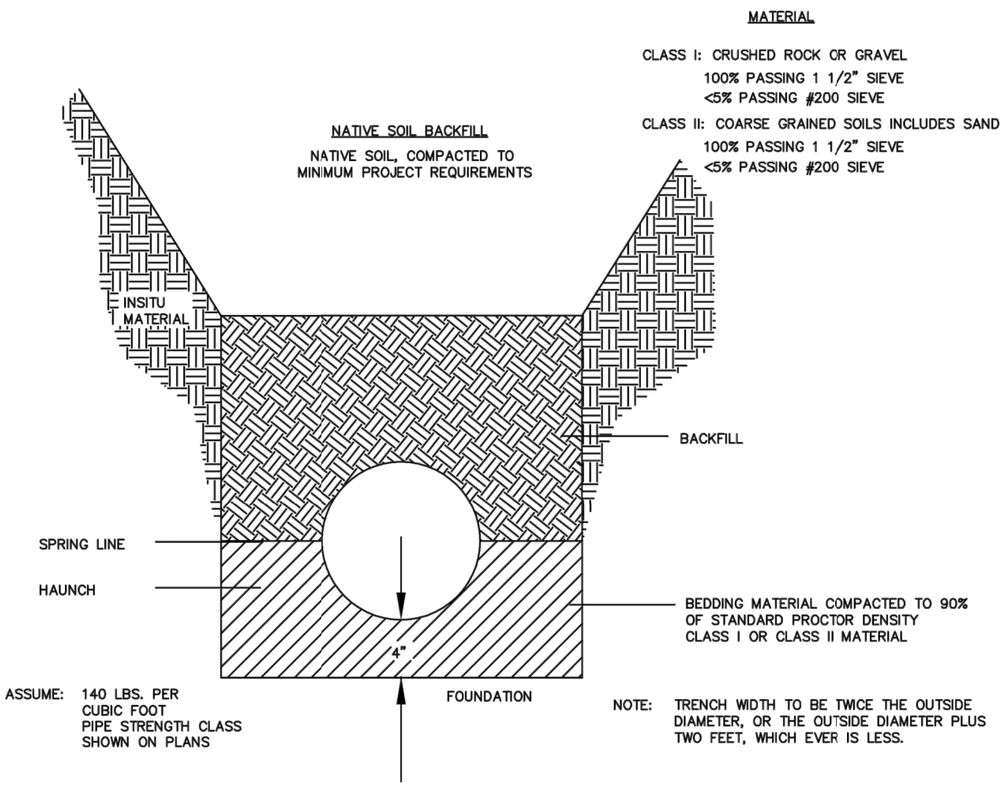
Published Date: 2nd Qtr. 2018	SDDOT	C.M.P. TO R.C.P. TRANSITION AND R.C.P. TO C.M.P. TRANSITION	PLATE NUMBER 450.50
			Sheet 1 of 1

DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	42	56

FILE: 667021 – Details.dwg
PLOTTING DATE: 2018–06–28 INITIALS: GGL
REVISION DATE: **06–28–2018**

FOR 12" THRU 84" DIAMETER PIPE
TYPE B INSTALLATION



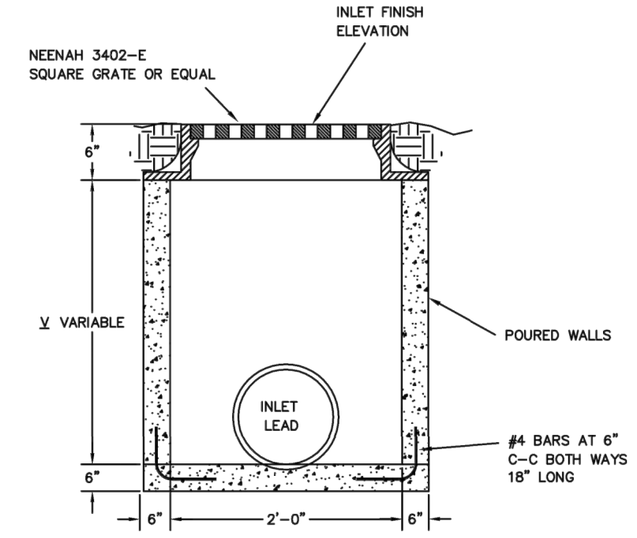
ASSUME: 140 LBS. PER CUBIC FOOT
PIPE STRENGTH CLASS SHOWN ON PLANS

NOTE: TRENCH WIDTH TO BE TWICE THE OUTSIDE DIAMETER, OR THE OUTSIDE DIAMETER PLUS TWO FEET, WHICH EVER IS LESS.

QUANTITY ESTIMATE TABLE
FOR BEDDING MATERIAL

12"	0.14 TON/L.F.
15"	0.19 TON/L.F.
18"	0.25 TON/L.F.
21"	0.29 TON/L.F.
24"	0.33 TON/L.F.
27"	0.36 TON/L.F.
30"	0.40 TON/L.F.
33"	0.44 TON/L.F.
36"	0.48 TON/L.F.
42"	0.57 TON/L.F.
48"	0.67 TON/L.F.
54"	0.77 TON/L.F.
60"	0.88 TON/L.F.
66"	0.98 TON/L.F.
72"	1.10 TON/L.F.
78"	1.24 TON/L.F.
84"	1.35 TON/L.F.

BEDDING AND BACKFILL FOR
RCP TYPE B INSTALLATION



ESTIMATED QUANTITIES			
ITEM	UNIT	CONSTANT	VARIABLE
* CLASS M6 CONCRETE	CUYDS	0.17	0.19V
REINFORCEMENT–CONC. MASONRY	LBS	16	---

* CONSTANT SHALL BE REDUCED FOR THE APPROPRIATE PIPE OR COMBINATION OF PIPES, THUS; 12" DIA.=–0.03 C.Y., 15" DIA=–0.04 C.Y., 18" DIA.=–0.05 C.Y.

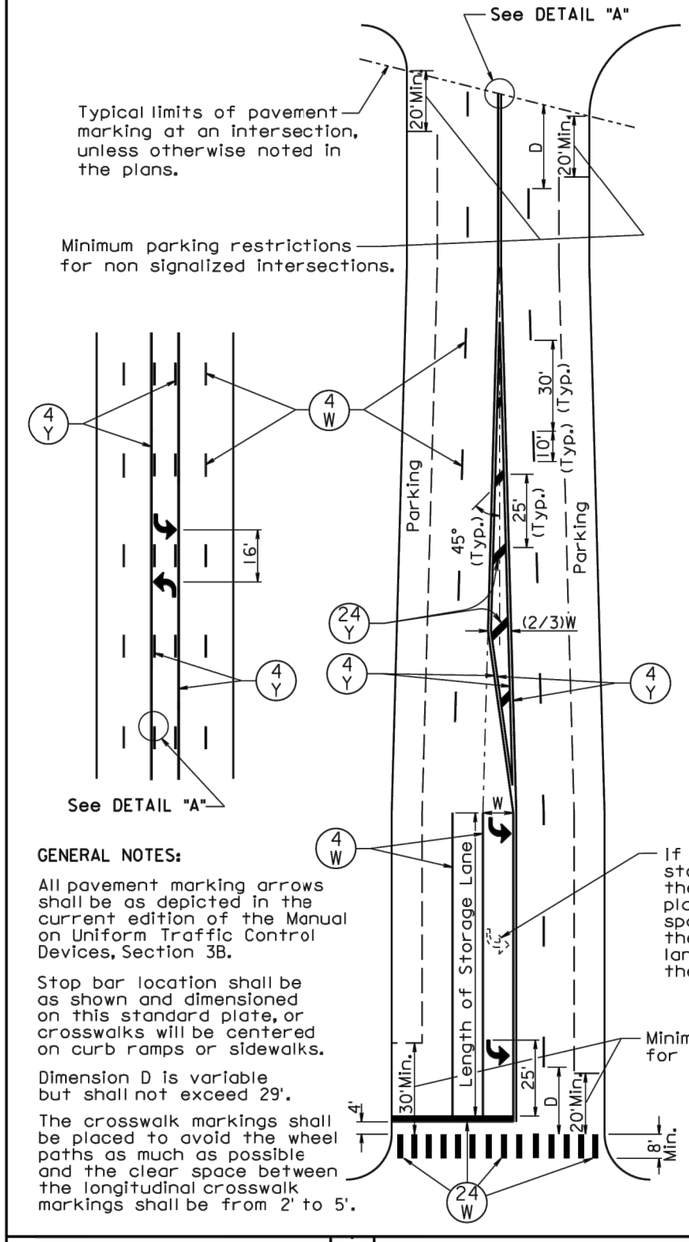
REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9236
GABRIEL G. LABER
7/11/18
SOUTH DAKOTA

2' x 2' CATCH BASIN
WITH SURFACE DRAIN

DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	43	56

FILE: 667021 – Details.dwg
PLOTTING DATE: 2018–06–28 INITIALS: GGL
REVISION DATE: **06–28–2018**



KEY	ITEM
4 W	4" White
4 Y	4" Yellow
12 W	12" White
24 W	24" White
24 Y	24" Yellow
↱	Arrow

GENERAL NOTES:

All pavement marking arrows shall be as depicted in the current edition of the Manual on Uniform Traffic Control Devices, Section 3B.

Stop bar location shall be as shown and dimensioned on this standard plate, or crosswalks will be centered on curb ramps or sidewalks.

Dimension D is variable but shall not exceed 29'.

The crosswalk markings shall be placed to avoid the wheel paths as much as possible and the clear space between the longitudinal crosswalk markings shall be from 2' to 5'.

September 14, 2011

Published Date: 2nd Qtr. 2018

SDDOT

PAVEMENT MARKINGS FOR ADJACENT INTERSECTIONS AND CENTER TURN LANE

PLATE NUMBER 633.01

Sheet 1 of 1

The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

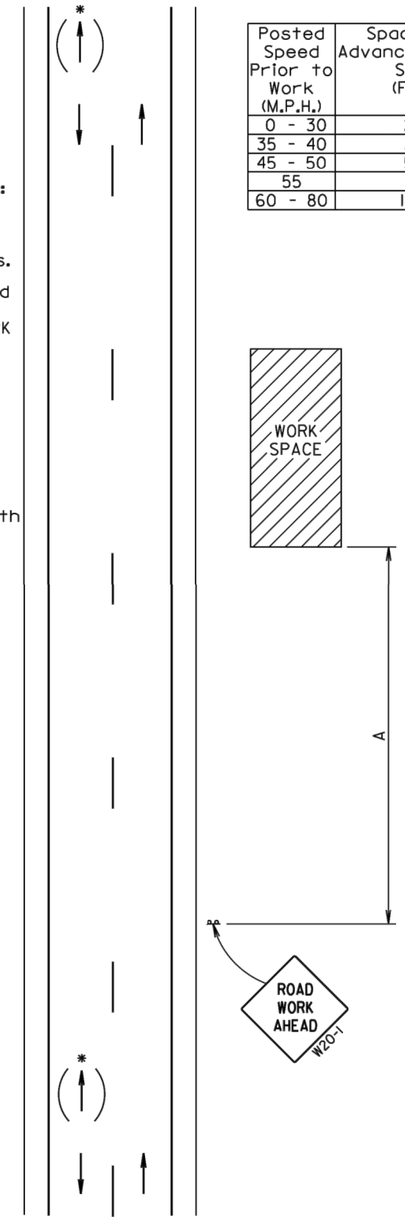
The signs illustrated shall be used where there are distracting situations; such as: vehicles parked on shoulder, vehicles accessing the work site via the highway, and equipment traveling on or crossing the roadway to perform work operations.

The ROAD WORK AHEAD sign may be replaced with other appropriate signs, such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.

* If the work space is on a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 80	1000



April 15, 2015

Published Date: 2nd Qtr. 2018

SDDOT

GUIDES FOR TRAFFIC CONTROL DEVICES WORK BEYOND THE SHOULDER

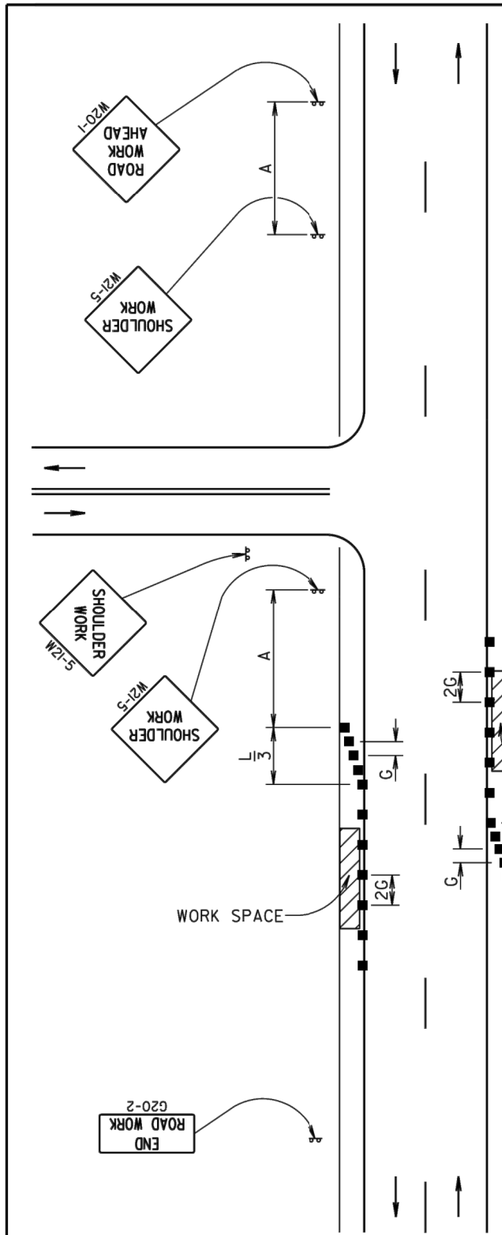
PLATE NUMBER 634.01

Sheet 1 Of 1

DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	44	56

FILE: 667021 – Details.dwg
PLOTTING DATE: 2018–06–28 INITIALS: GGL
REVISION DATE: **06–28–2018**



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45	500	600	25
50	500	600	50
55	750	660	50
60 - 65	1000	780	50

■ Channelizing Device

The channelizing devices shall be drums or 42" cones if traffic control must remain overnight.

For short duration operations (1 hour or less) all channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

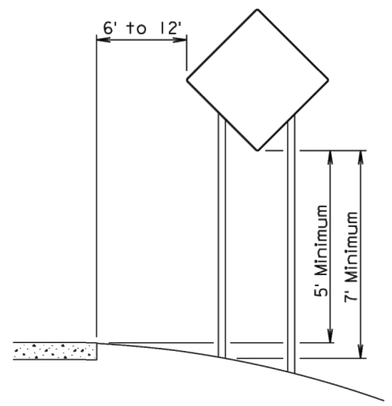
Worker signs (W21-1 or W21-1a) may be used instead of SHOULDER WORK signs.

A SHOULDER WORK sign should be placed on the left side of a divided or one-way roadway only if the left shoulder is affected.

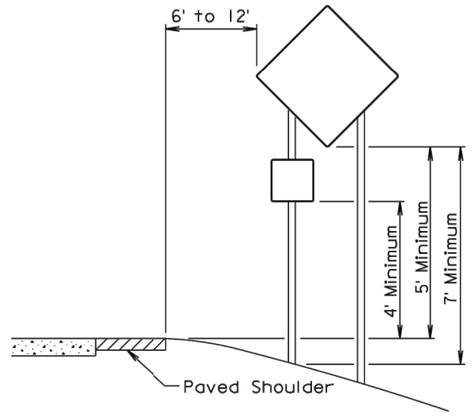
The SHOULDER WORK sign on an intersecting roadway is not required if drivers emerging from that roadway will encounter another advance warning sign before they reach a work activity area.

June 3, 2016

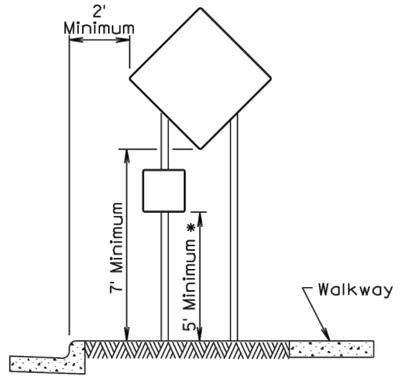
Published Date: 2nd Qtr. 2018	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES WORK ON SHOULDERS	PLATE NUMBER 634.03
			Sheet 1 of 1



RURAL DISTRICT

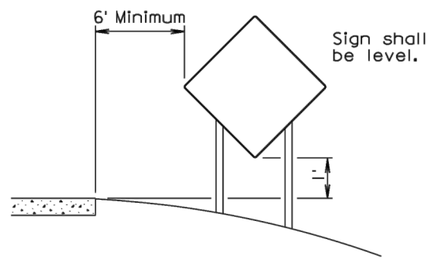


RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.



RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

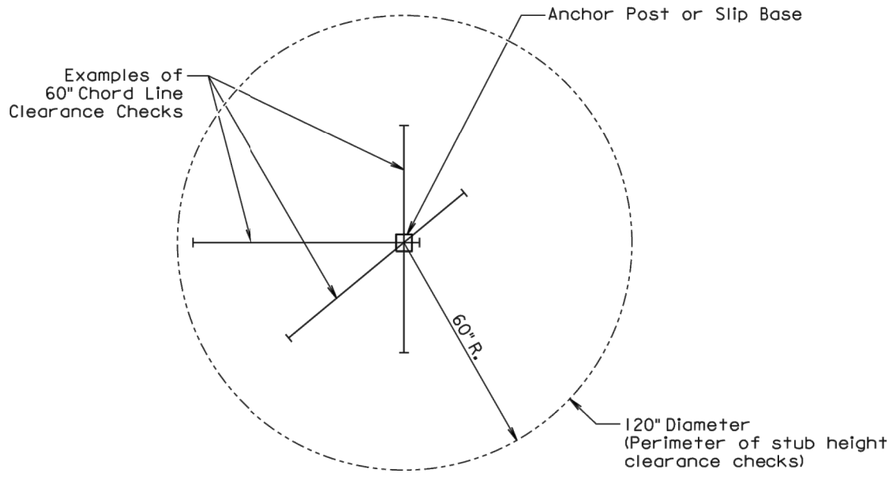
September 22, 2014

Published Date: 2nd Qtr. 2018	SDDOT	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1

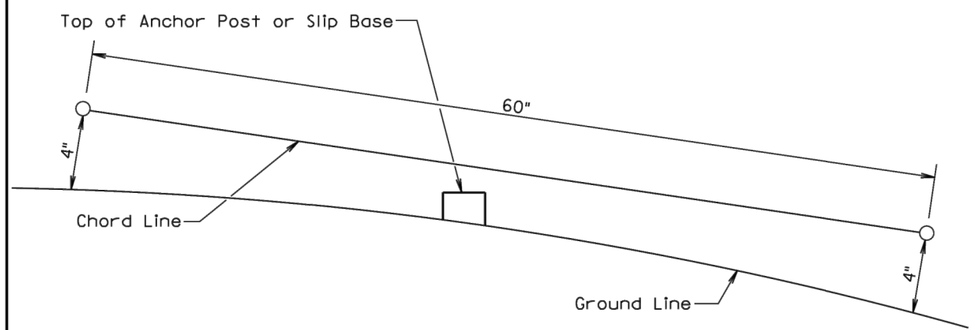
DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	45	56

FILE: 667021 – Details.dwg
PLOTTING DATE: 2018–06–28 INITIALS: GGL
REVISION DATE: **06–28–2018**



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

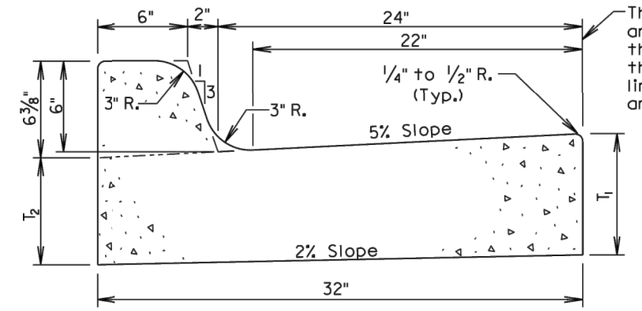
The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

July 1, 2005

Published Date: 2nd Qtr. 2018	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1



Type	T_1 (Inches)	T_2 (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
B66	6	5 1/16	0.057	17.7
B67	7	6 1/16	0.065	15.4
B68	8	7 1/16	0.073	13.7
B68.5	8.5	7 9/16	0.077	13.0
B69	9	8 1/16	0.081	12.3
B69.5	9.5	8 9/16	0.085	11.7
B610	10	9 1/16	0.090	11.2
B610.5	10.5	9 9/16	0.094	10.7
B611	11	10 1/16	0.098	10.2
B611.5	11.5	10 9/16	0.102	9.8
B612	12	11 1/16	0.106	9.4

GENERAL NOTES:

When concrete curb and gutter longitudinally adjoins new concrete pavement, the method of attachment shall be by one of the methods shown on Standard Plate 380.11.

See Standard Plate 650.90 for expansion and contraction joints in the curb and gutter.

September 6, 2008

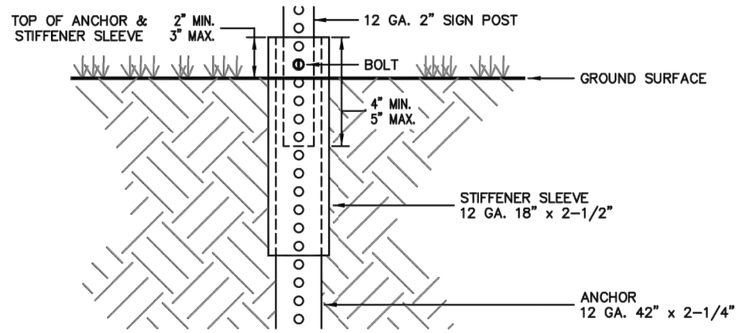
Published Date: 2nd Qtr. 2018	SDDOT	TYPE B CONCRETE CURB AND GUTTER	PLATE NUMBER 650.01
			Sheet 1 of 1

DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	46	56

FILE: 667021 – Details.dwg
PLOTTING DATE: 2018–06–28 INITIALS: GGL
REVISION DATE: 06–28–2018

PERFORATED TUBE POST
(TELESPAR POST)



NOTES

BOLTS AND WASHERS USED FOR MOUNTING TRAFFIC SIGNS SHALL BE STAINLESS STEEL. FLAT WASHERS SHALL BE MIL. SPEC. MS813.

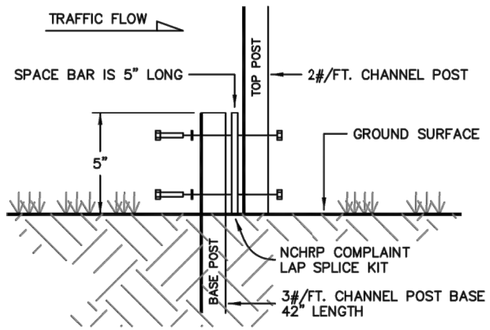
NUTS USED FOR MOUNTING TRAFFIC SIGNS SHALL BE A NYLOC (SELF–LOCKING) TYPE.

SIGNS SHALL BE MOUNTED USING A PLASTIC / NYLON WASHER PLACED BETWEEN THE SIGN FACE AND THE METALLIC FLAT WASHER.

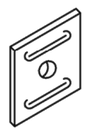
LAG SCREWS USED TO MOUNT TRAFFIC SIGNS TO WOODEN POWER POLES SHALL BE GALVANIZED OR STAINLESS STEEL.

ALL HARDWARE REQUIRED FOR MOUNTING THE SIGNS SHALL BE INCIDENTAL TO THE COST OF INSTALLING THE SIGNS.

FLANGED CHANNEL POST
(U-POST)

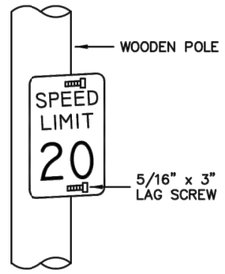


SIGN SAVER PLATE
3"X3" PUNCHED RIBBED ALUMINUM



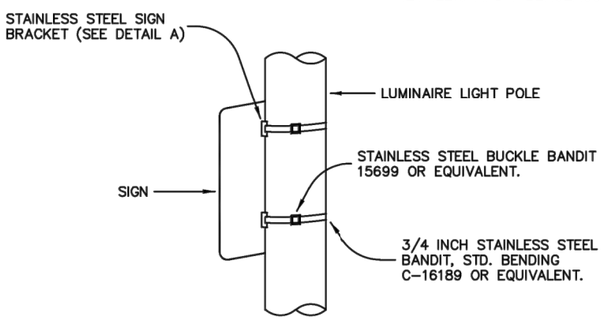
TO BE USED WHEN MOUNTING SIGNS ON CHANNEL POST.

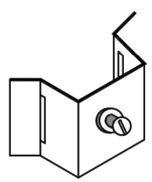
SIGN MOUNTING ON WOODEN POWER POLE



STAINLESS STEEL BAND MOUNTING SYSTEM

TO BE USED WHEN MOUNTING SIGNS ON METALLIC AND FIBERGLASS POLES.





BANDIT DO–21 OR EQUIVALENT.

DETAIL A

PG. 1 OF 2

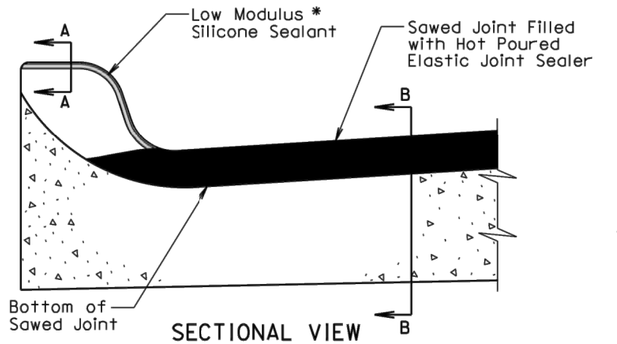
REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9236
GABRIEL G. LABER
7/11/18
SOUTH DAKOTA

SIGN MOUNT SPECIFICATIONS

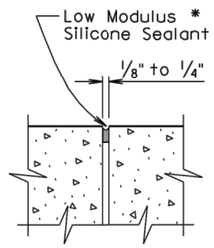
DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	47	56

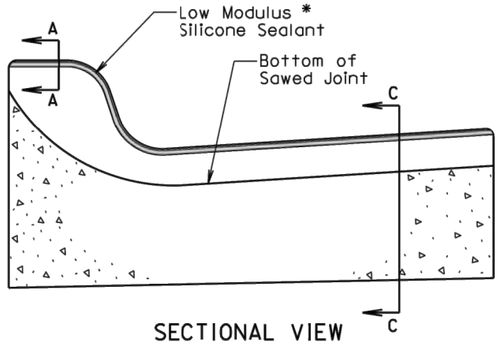
FILE: 667021 – Details.dwg
PLOTTING DATE: 2018–06–28 INITIALS: GGL
REVISION DATE: **06–28–2018**



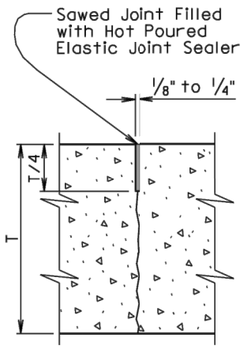
SECTIONAL VIEW
(Curb and Gutter Placed Monolithic with Adjacent Mainline PCC Pavement)



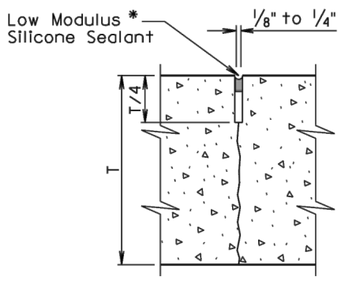
SECTION A-A



SECTIONAL VIEW
(Curb and Gutter not Placed Monolithic with Adjacent Mainline PCC Pavement or Mainline Surfacing is not PCC Pavement)



SECTION B-B

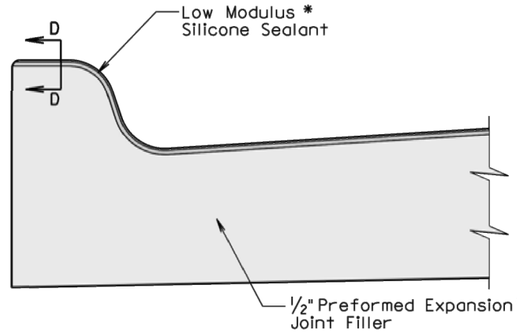


SECTION C-C

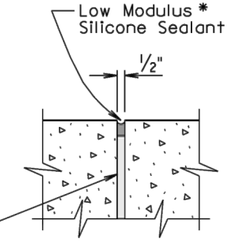
* The silicone sealant shall be placed such that it completely seals the joint and is bonded to the sides of the clean joint as approved by the Engineer.

September 6, 2013

Published Date: 2nd Qtr. 2018	SDDOT	JOINTS IN CONCRETE CURB AND GUTTER	PLATE NUMBER 650.90
			Sheet 1 of 2



SECTIONAL VIEW
(Curb and Gutter at 1/2" Preformed Expansion Joint Filler Location)



SECTION D-D

* The silicone sealant shall be placed such that it completely seals the joint and is bonded to the sides of the clean joint as approved by the Engineer.

GENERAL NOTES:

For illustrative reason, only the type B curb and gutter is shown.

** A 1/2" preformed expansion joint filler shall be placed transversely in the curb and gutter at the following locations:

1. At each junction between the radius return of curb and gutter and curb and gutter which is parallel to the project centerline.
2. At each junction between new curb and gutter and existing curb and gutter.

Transverse contraction joints shall be constructed at 10' intervals in the concrete curb and gutter except when the concrete curb and gutter is constructed adjacent to mainline PCC pavement. When concrete curb and gutter is constructed adjacent to mainline PCC pavement, a transverse contraction joint shall be constructed in the concrete curb and gutter at each mainline PCC pavement transverse contraction joint location.

When concrete curb and gutter is not placed monolithically with the mainline PCC pavement or when the adjacent mainline surfacing is not PCC concrete, the transverse contraction joints in the concrete curb and gutter shall be 1 1/2 inches deep if formed in the fresh concrete using a suitable grooving tool. If a saw is used to cut the contraction joints, then the depth of the joint shall be at least 1/4 the thickness of the concrete and the joint shall be sealed in accordance with the details shown above.

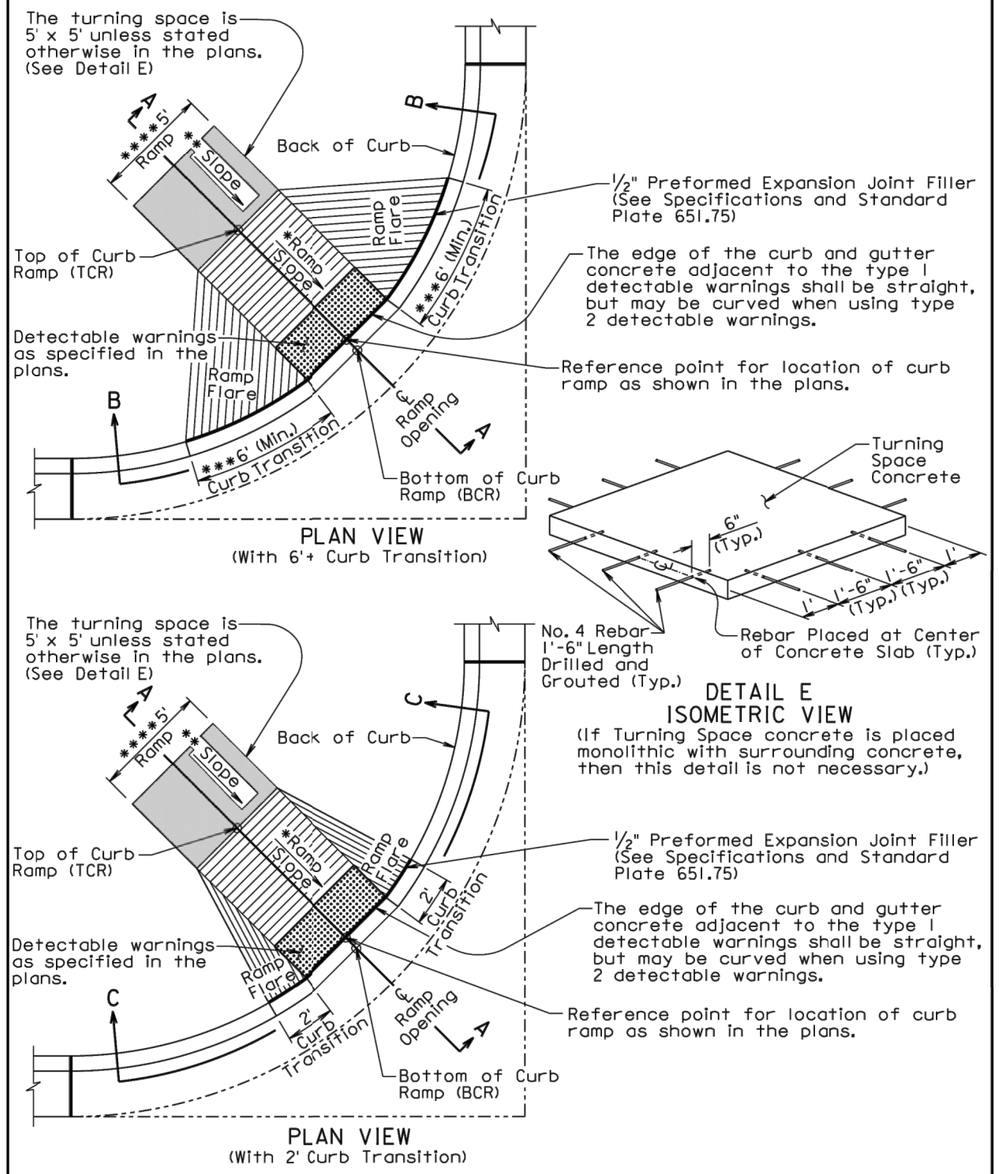
September 6, 2013

Published Date: 2nd Qtr. 2018	SDDOT	JOINTS IN CONCRETE CURB AND GUTTER	PLATE NUMBER 650.90
			Sheet 2 of 2

DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	48	56

FILE: 667021 – Details.dwg
PLOTTING DATE: 2018-06-28 INTIALS: GGL
REVISION DATE: **06-28-2018**



September 6, 2015

Published Date: 2nd Qtr. 2018	SDDOT	TYPE 1 CURB RAMP (PERPENDICULAR CURB RAMP)	PLATE NUMBER 651.01
			Sheet 1 of 3

* Curb ramp slopes are designed at 7.5% unless stated otherwise in the plans. The curb ramp may have a maximum slope of 8.3% and shall not exceed 15' in length unless stated otherwise in the plans.

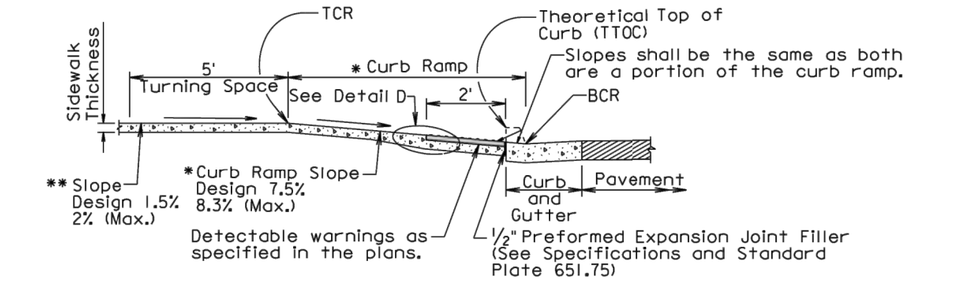
The curb ramp length may be computed based on the intersection of a continuous 1.5% theoretical slope from theoretical top of curb (TTOC) with the curb ramp using a continuous 7.5% curb ramp slope. The elevation of point TCR shall always be higher than the elevation of point TTOC unless specified otherwise in the plans. The curb ramp length dimension as shown in the plans shall be adjusted as necessary to meet all slope and length requirements based on field geometrics.

The cross slope of the ramp shall not be steeper than 2%. Plans are designed using a 1.5% slope unless stated otherwise in the plans.

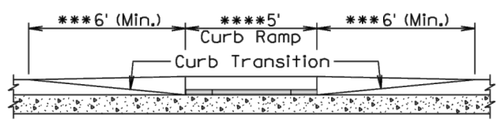
** The slope in the turning space shall not be steeper than 2% in any direction of pedestrian travel. Plans are designed using a 1.5% slope unless stated otherwise in the plans.

*** The curb transition shall be a minimum of 6' long, a maximum of 10' long, and the curb transition slope shall not be steeper than 10% unless stated otherwise in the plans. The curb transition length shall be adjusted as necessary to meet slope and length requirements based on field geometrics.

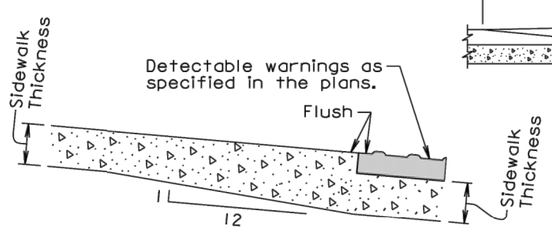
**** The ramp width is 5' unless stated otherwise in the plans.



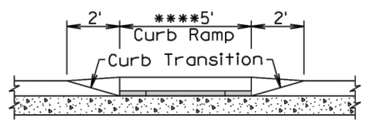
SECTION A-A



SECTIONAL VIEW B-B



DETAIL D



SECTIONAL VIEW C-C

September 6, 2015

Published Date: 2nd Qtr. 2018	SDDOT	TYPE 1 CURB RAMP (PERPENDICULAR CURB RAMP)	PLATE NUMBER 651.01
			Sheet 2 of 3

DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	49	56

FILE: 667021 – Details.dwg
PLOTTING DATE: 2018–06–28 INITIALS: GGL
REVISION DATE: 06–28–2018

GENERAL NOTES:

For illustrative purpose only, type I detectable warnings are shown in the drawings.

For illustrative purpose only, PCC fillet sections are shown in the drawings. The curb ramp depicted on this standard plate may be used with a PCC fillet section or curb and gutter.

For illustrative purpose only, the curb ramp location is shown at the center of a PCC fillet section. The curb ramp shall be placed at the location stated in the plans.

Sidewalk shall not be placed adjacent to the curb ramp flares when a 2' curb transition is used unless shown otherwise in the plans.

* Care shall be taken to ensure a uniform grade on the curb ramp, free of sags and short grade changes.

Surface texture of the curb ramp shall be obtained by coarse brooming transverse to the slope of the curb ramp.

The normal gutter line profile shall be maintained through the area of the ramp opening.

Joints shall be sawed or tooled into the concrete adjacent to the detectable warnings to alleviate possible corner cracking.

Care shall be taken to ensure that the surface of the detectable warnings are clean and maintains a uniform color.

The detectable warnings shall be cut as necessary to fit the plan specified limits of the detectable warnings. Cost for cutting the detectable warnings shall be incidental to the corresponding detectable warning bid item.

There will be no separate payment for curb ramps. The curb ramp shall be measured and paid for at the contract unit price per square foot for the corresponding concrete sidewalk bid item. The square foot area of the detectable warnings shall be included in the measured and paid for quantity of sidewalk.

If rebar is placed in the Turning Space as depicted in DETAIL E, the cost of the materials, labor, and equipment to furnish and install the rebar shall be incidental to the contract unit price per square foot for the corresponding concrete sidewalk bid item.

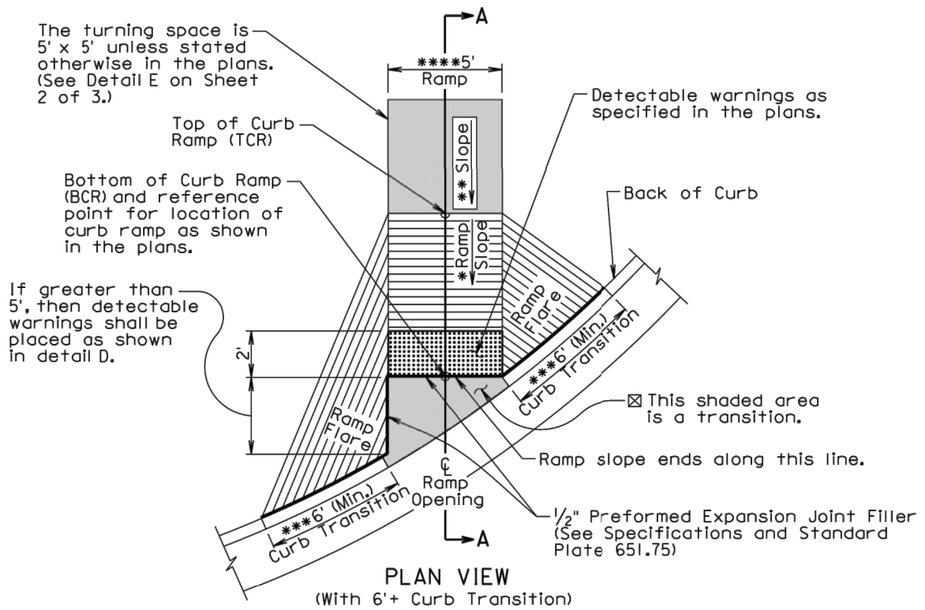
The curb transitions and ramp opening shall be measured and paid for at the contract unit price per foot for the corresponding curb and gutter bid item when curb and gutter is used. The curb transitions and ramp opening shall be measured and paid for at the contract unit price per square yard for the corresponding PCC fillet section bid item when a PCC fillet section is used.

The type I detectable warnings shall be measured to the nearest square foot. All costs for furnishing and installing the type I detectable warnings including labor, equipment, materials, and incidentals shall be paid for at the contract unit price per square foot for "Type I Detectable Warnings".

The type 2 detectable warnings shall be measured to the nearest square foot. All costs for furnishing and installing the type 2 detectable warnings including labor, equipment, and materials, including adhesive, necessary sealant or grout, and necessary grinding shall be paid for at the contract unit price per square foot for "Type 2 Detectable Warnings".

September 6, 2015

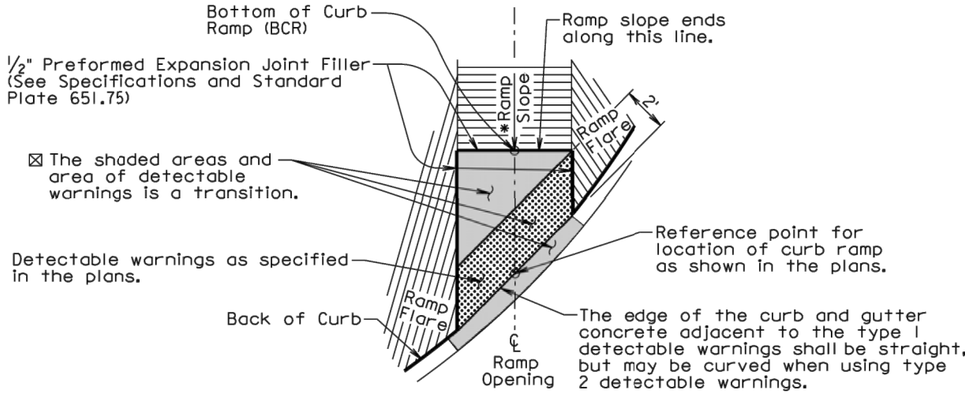
Published Date: 2nd Qtr. 2018	SDDOT	**TYPE 1 CURB RAMP (PERPENDICULAR CURB RAMP)**	PLATE NUMBER 651.01
			Sheet 3 of 3



PLAN VIEW
(With 6'+ Curb Transition)

☒ The slope within the transition area shall not be steeper than 5%. The concrete within the transition shall be placed monolithic with the curb and gutter or fillet section concrete. The concrete thickness within the transition shall be the same as the curb and gutter or fillet section concrete thickness.

*** The curb transition shall be a minimum of 6' long, a maximum of 10' long, and the curb transition slope shall not be steeper than 10% unless stated otherwise in the plans. The curb transition length shall be adjusted as necessary to meet slope and length requirements based on field geometrics.



DETAIL D

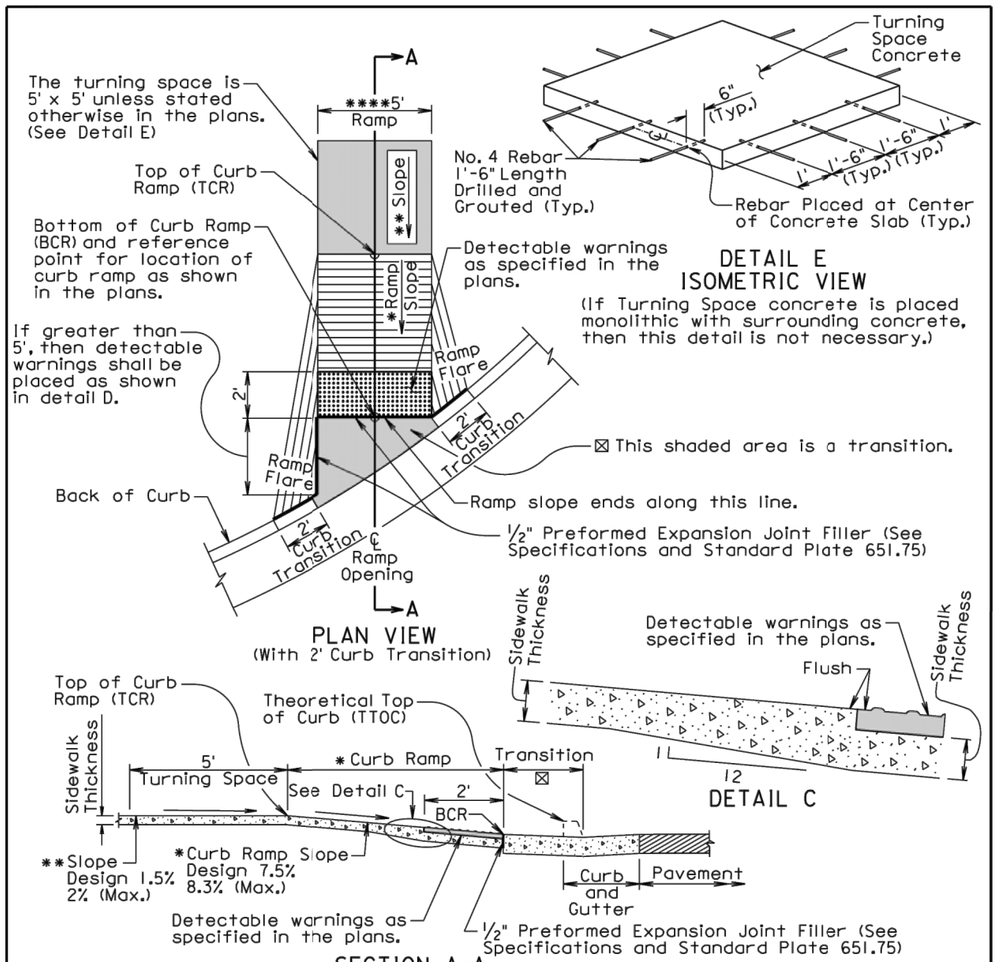
September 6, 2015

Published Date: 2nd Qtr. 2018	SDDOT	**TYPE 2 CURB RAMP (DIRECTIONAL CURB RAMP)**	PLATE NUMBER 651.02
			Sheet 1 of 3

DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	50	56

FILE: 667021 – Details.dwg
PLOTTING DATE: 2018-06-28 INITIALS: GGL
REVISION DATE: 06-28-2018



Curb ramp slopes are designed at 7.5% unless stated otherwise in the plans. The curb ramp may have a maximum slope of 8.3% and shall not exceed 15' in length unless stated otherwise in the plans.

* The elevation of point TCR shall always be higher than the elevation of point TTOC unless specified otherwise in the plans. The curb ramp length dimension as shown in the plans shall be adjusted as necessary to meet all slope and length requirements based on field geometrics.

The cross slope of the ramp shall not be steeper than 2%. Plans are designed using a 1.5% slope unless stated otherwise in the plans.

** The slope in the turning space shall not be steeper than 2% in any direction of pedestrian travel. Plans are designed using a 1.5% slope unless stated otherwise in the plans.

**** The ramp width is 5' unless stated otherwise in the plans.

September 6, 2015

Published Date: 2nd Qtr. 2018	SDDOT	TYPE 2 CURB RAMP (DIRECTIONAL CURB RAMP)	PLATE NUMBER 651.02
			Sheet 2 of 3

GENERAL NOTES:

For illustrative purpose only, type I detectable warnings are shown in the drawings.

The curb ramp depicted on this standard plate may be used with a PCC fillet section or curb and gutter. The curb ramp shall be placed at the location stated in the plans.

Sidewalk shall not be placed adjacent to the curb ramp flares when a 2' curb transition is used unless shown otherwise in the plans.

* Care shall be taken to ensure a uniform grade on the curb ramp, free of sags and short grade changes.

Surface texture of the curb ramp shall be obtained by coarse brooming transverse to the slope of the curb ramp.

The normal gutter line profile shall be maintained through the area of the ramp opening.

Joints shall be sawed or tooled into the concrete adjacent to the detectable warnings to alleviate possible corner cracking.

Care shall be taken to ensure that the surface of the detectable warnings are clean and maintains a uniform color.

The detectable warnings shall be cut as necessary to fit the plan specified limits of the detectable warnings. Cost for cutting the detectable warnings shall be incidental to the corresponding detectable warning bid item.

There will be no separate payment for curb ramps. The curb ramp shall be measured and paid for at the contract unit price per square foot for the corresponding concrete sidewalk bid item. The square foot area of the detectable warnings shall be included in the measured and paid for quantity of sidewalk.

If rebar is placed in the Turning Space as depicted in DETAIL E, the cost of the materials, labor, and equipment to furnish and install the rebar shall be incidental to the contract unit price per square foot for the corresponding concrete sidewalk bid item.

The curb transitions and ramp opening shall be measured and paid for at the contract unit price per foot for the corresponding curb and gutter bid item when curb and gutter is used. The curb transitions and ramp opening shall be measured and paid for at the contract unit price per square yard for the corresponding PCC fillet section bid item when a PCC fillet section is used.

All costs for furnishing and installing the transition area at the base of the curb ramp shall be incidental to the contract unit price per foot for the corresponding curb and gutter bid item when curb and gutter is used and shall be incidental to the contract unit price per square yard for the corresponding PCC fillet section bid item when a PCC fillet section is used.

The type I detectable warnings shall be measured to the nearest square foot. All costs for furnishing and installing the type I detectable warnings including labor, equipment, materials, and incidentals shall be paid for at the contract unit price per square foot for "Type I Detectable Warnings".

The type 2 detectable warnings shall be measured to the nearest square foot. All costs for furnishing and installing the type 2 detectable warnings including labor, equipment, and materials, including adhesive, necessary sealant or grout, and necessary grinding shall be paid for at the contract unit price per square foot for "Type 2 Detectable Warnings".

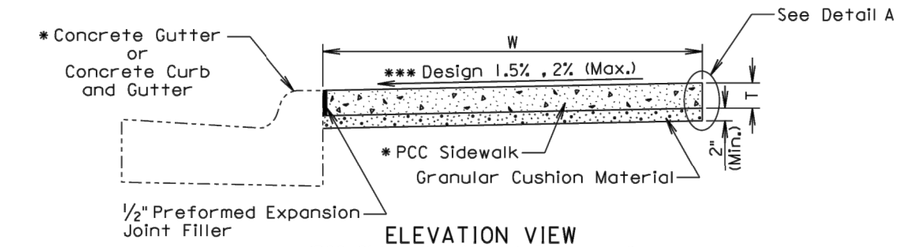
September 6, 2015

Published Date: 2nd Qtr. 2018	SDDOT	TYPE 2 CURB RAMP (DIRECTIONAL CURB RAMP)	PLATE NUMBER 651.02
			Sheet 3 of 3

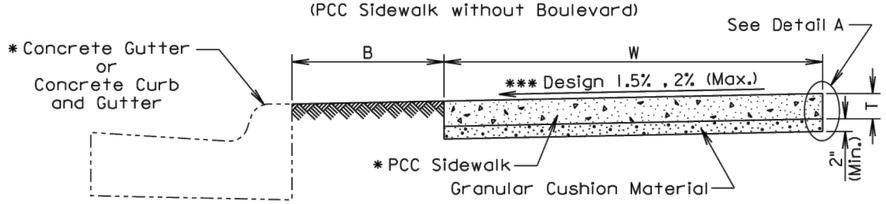
DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	51	56

FILE: 667021 – Details.dwg
PLOTTING DATE: 2018–06–28 INITIALS: GGL
REVISION DATE: **06–28–2018**

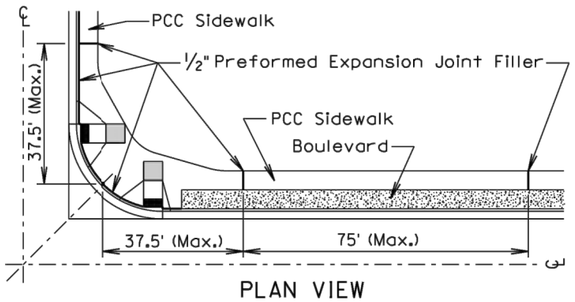


ELEVATION VIEW
(PCC Sidewalk without Boulevard)



ELEVATION VIEW
(PCC Sidewalk with Boulevard)

B Width of boulevard as specified in the plans.
T Thickness of PCC sidewalk as specified in the plans.
W Width of PCC sidewalk as specified in the plans.
* Type as specified in the plans.



PLAN VIEW

GENERAL NOTES:

The PCC sidewalk shall be constructed in accordance with Section 651 of the Specifications.

*** The cross slope of the sidewalk is designed at 1.5% and the maximum slope allowed is 2% unless specified otherwise in the plans.

The maximum length between expansion joints in PCC sidewalk is 75 feet.

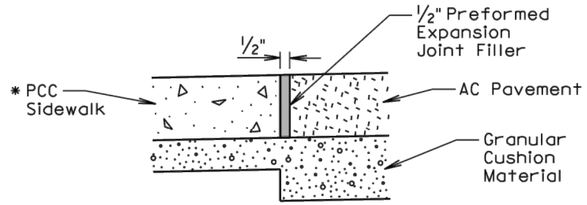
PCC sidewalk placed adjacent to intersection of roadways shall have an expansion joint placed transversely a maximum of 37.5 feet from the intersection. See PLAN VIEW.

An expansion joint in PCC sidewalk shall consist of a ½ inch thick preformed expansion joint filler material placed full depth and width of the PCC sidewalk.

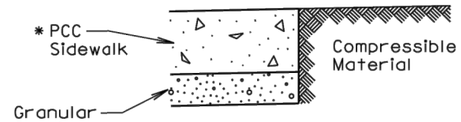
** Large areas of PCC pavement adjacent to PCC sidewalk may require a different joint treatment than shown in the detail. If a different joint detail is necessary, plans will contain the joint detail and the Contractor shall construct the joint treatment in accordance with the plans.

September 6, 2015

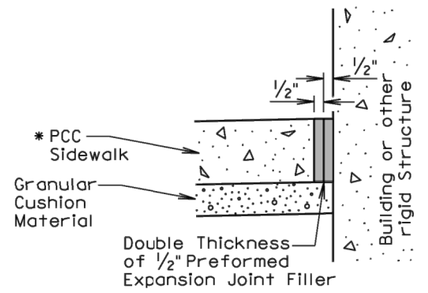
Published Date: 2nd Qtr. 2018	SDDOT	PCC SIDEWALK	PLATE NUMBER 651.75
			Sheet 1 of 2



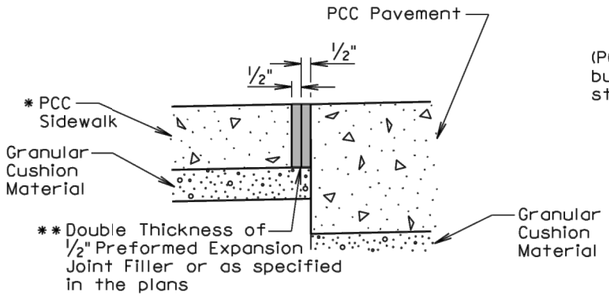
ELEVATION VIEW
(PCC sidewalk adjacent to asphalt concrete pavement)



ELEVATION VIEW
(PCC sidewalk adjacent to earthen material, landscape rock, or other compressible materials)



ELEVATION VIEW
(PCC sidewalk adjacent to building or other rigid structure)



ELEVATION VIEW
(PCC sidewalk adjacent to PCC pavement)

Detail A
(Use Appropriate Detail(s))

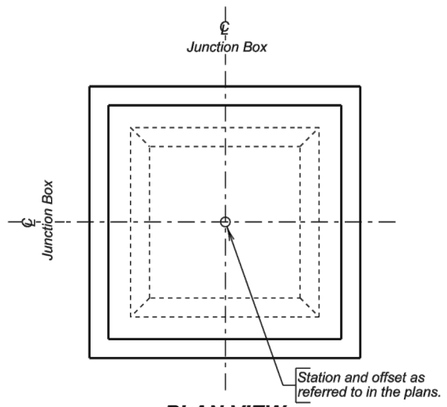
September 6, 2015

Published Date: 2nd Qtr. 2018	SDDOT	PCC SIDEWALK	PLATE NUMBER 651.75
			Sheet 2 of 2

DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	52	56

FILE: 667021 – Details.dwg
PLOTTING DATE: 2018–06–28 INTIALS: GGL
REVISION DATE: 06–28–2018



PLAN VIEW

SPECIFICATIONS

Design Specifications: AASHTO LRFD Bridge Design Specifications, 2012 Edition.

Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, Current Edition and required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

GENERAL NOTES

Design Live Load: HL-93. No construction loading in excess of legal load was considered.

The design of the junction box is based on a maximum fill over the junction box of 5 feet and minimum fill over the junction box of 2 feet.

Reinforcing steel shall conform to ASTM A615 Grade 60. Cut and bend reinforcing steel as required to place pipe(s) through junction box wall.

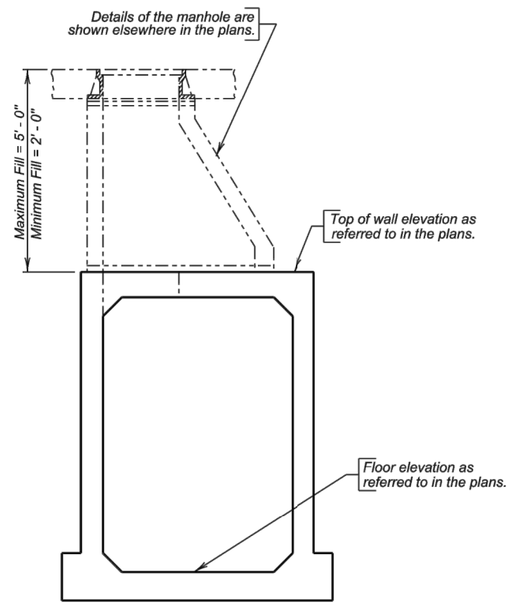
Junction box may be precast. If precast junction box details differ from this standard plate, submit a checked design done by a SD registered P.E. and shop plans to the Office of Bridge Design for approval.

Use 1 inch clear cover on all reinforcing steel unless otherwise noted.

All exposed edges shall be chamfered ¾ inch.

Junction box shown may be modified by the addition or omission of connecting pipes as noted elsewhere in the plans. All pipes entering junction box must fit between the inside face of walls and shall not enter through the corners.

The cost of furnishing and installing the manhole steps shall be incidental to the contract unit price per pound for "Reinforcing Steel".



ELEVATION VIEW

PIPE DISPLACEMENT REDUCTIONS

	Diameter (Inches)	Wall T (Inches)	Class M6 Concrete (Cu. Yd.)
R.C.P.	12	2	0.03
	15	2 ¼	0.04
	18	2 ½	0.05
	24	3	0.09
	30	3 ½	0.14
	36	4	0.20
	42	4 ½	0.26
	48	5	0.34
	54	5 ½	0.43

ESTIMATED QUANTITIES

ITEM	⚹ Class M6 Concrete	Reinforcing Steel
UNIT	Cu. Yd.	Lb.
H = 4' - 0"	4.37	821
H = 4' - 6"	4.61	846
H = 5' - 0"	4.85	908
H = 5' - 6"	5.10	933
H = 6' - 0"	5.34	958
H = 6' - 6"	5.58	1020
H = 7' - 0"	5.82	1045
H = 7' - 6"	6.06	1071
H = 8' - 0"	6.30	1132

⚹ *Reduce total quantities of concrete by the amount of concrete displaced by the pipe(s). Quantity shown includes reduction for a 24-inch diameter manhole opening. The total quantity of concrete shall be computed to the nearest hundredth of a cubic yard.*

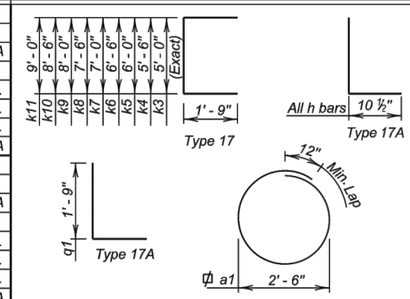
December 16, 2015

Published Date: 2nd Qtr. 2018	SDDOT	5'X 5' JUNCTION BOX	PLATE NUMBER 671.01
			Sheet 1 of 3

REINFORCING SCHEDULE

	Mk.	No.	Size	Length	Type
H = 4' - 0"	⌀ a1	1	6	9' - 0"	T3
	▼ a2	4	–	———	—
	h3	28	4	5' - 9"	17A
	k3	48	4	8' - 6"	17
	m1	18	5	6' - 9"	Str.
	n1	18	5	5' - 9"	Str.
	p1	52	4	5' - 0"	Str.
	q1	8	4	3' - 6"	17A
H = 4' - 6"	⌀ a1	1	6	9' - 0"	T3
	▼ a2	4	–	———	—
	h4	28	4	6' - 3"	17A
	k4	48	4	9' - 0"	17
	m1	18	5	6' - 9"	Str.
	n1	18	5	5' - 9"	Str.
	p1	52	4	5' - 0"	Str.
	q1	8	4	3' - 6"	17A
H = 5' - 0"	⌀ a1	1	6	9' - 0"	T3
	▼ a2	5	–	———	—
	h5	28	4	6' - 9"	17A
	k5	48	4	9' - 6"	17
	m1	18	5	6' - 9"	Str.
	n1	18	5	5' - 9"	Str.
	p1	52	4	5' - 0"	Str.
	q1	8	4	3' - 6"	17A
H = 5' - 6"	⌀ a1	1	6	9' - 0"	T3
	▼ a2	5	–	———	—
	h6	28	4	7' - 3"	17A
	k6	48	4	10' - 0"	17
	m1	18	5	6' - 9"	Str.
	n1	18	5	5' - 9"	Str.
	p1	60	4	5' - 0"	Str.
	q1	12	4	3' - 6"	17A
H = 6' - 0"	⌀ a1	1	6	9' - 0"	T3
	▼ a2	6	–	———	—
	h7	28	4	7' - 9"	17A
	k7	48	4	10' - 6"	17
	m1	18	5	6' - 9"	Str.
	n1	18	5	5' - 9"	Str.
	p1	60	4	5' - 0"	Str.
	q1	12	4	3' - 6"	17A
H = 6' - 6"	⌀ a1	1	6	9' - 0"	T3
	▼ a2	6	–	———	—
	h8	28	4	8' - 3"	17A
	k8	48	4	11' - 0"	17
	m1	18	5	6' - 9"	Str.
	n1	18	5	5' - 9"	Str.
	p1	68	4	5' - 0"	Str.
	q1	16	4	3' - 6"	17A
H = 7' - 0"	⌀ a1	1	6	9' - 0"	T3
	▼ a2	7	–	———	—
	h9	28	4	8' - 9"	17A
	k9	48	4	11' - 6"	17
	m1	18	5	6' - 9"	Str.
	n1	18	5	5' - 9"	Str.
	p1	68	4	5' - 0"	Str.
	q1	16	4	3' - 6"	17A

Bending Details



	Mk.	No.	Size	Length	Type
H = 7' - 6"	⌀ a1	1	6	9' - 0"	T3
	▼ a2	7	–	———	—
	h10	28	4	9' - 3"	17A
	k10	48	4	12' - 0"	17
	m1	18	5	6' - 9"	Str.
	n1	18	5	5' - 9"	Str.
	p1	68	4	5' - 0"	Str.
	q1	16	4	3' - 6"	17A
H = 8' - 0"	⌀ a1	1	6	9' - 0"	T3
	▼ a2	8	–	———	—
	h11	28	4	9' - 9"	17A
	k11	48	4	12' - 6"	17
	m1	18	5	6' - 9"	Str.
	n1	18	5	5' - 9"	Str.
	p1	76	4	5' - 0"	Str.
	q1	20	4	3' - 6"	17A

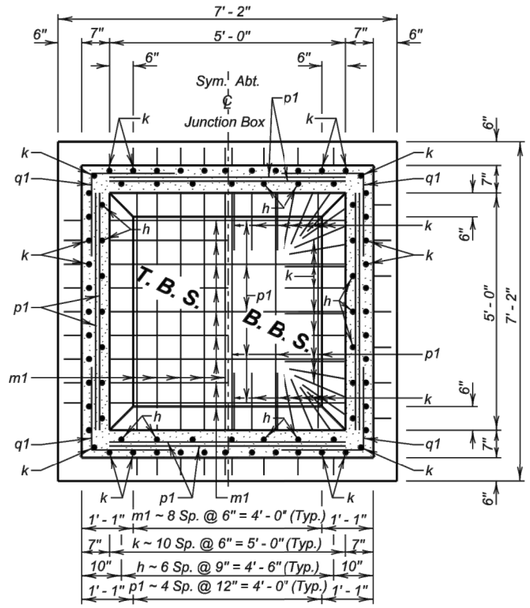
LEGEND FOR PLACING RE-STEEL

T. B. S. - Top of Bottom Slab
B. B. S. - Bottom of Bottom Slab

▼ *Cast iron Manhole Steps (R - 1980 - C) from Neenah Foundry or equivalant.*

⌀ *Locate in center of top slab with 3" clearance at manhole opening.*

All dimensions are out to out of bars.



SEC. A - A

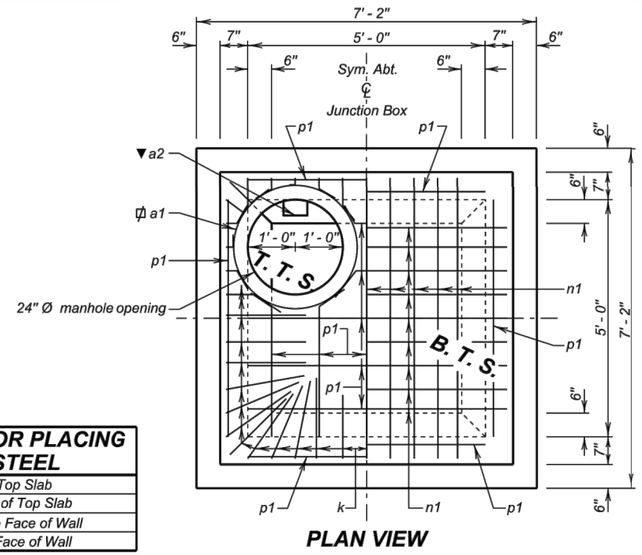
December 16, 2015

Published Date: 2nd Qtr. 2018	SDDOT	5'X 5' JUNCTION BOX	PLATE NUMBER 671.01
			Sheet 2 of 3

DETAILS

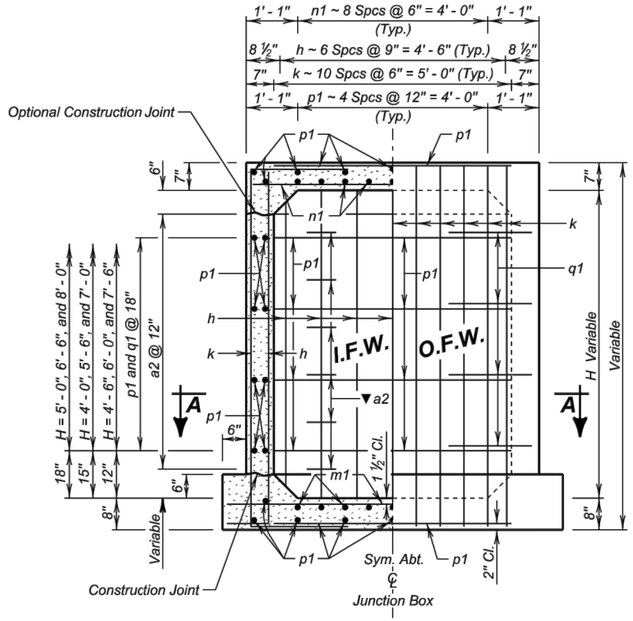
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	53	56

FILE: 667021 – Details.dwg
PLOTTING DATE: 2018–06–28 INITIALS: GGL
REVISION DATE: 06–28–2018



PLAN VIEW

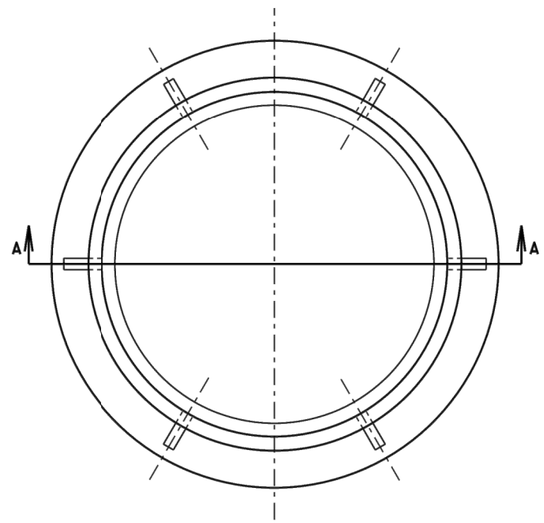
LEGEND FOR PLACING RE-STEEL
T. T. S. - Top of Top Slab
B. T. S. - Bottom of Top Slab
O. F. W. - Outside Face of Wall
I. F. W. - Inside Face of Wall



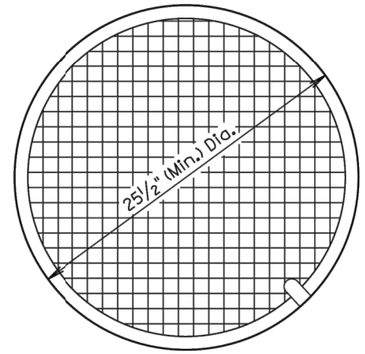
ELEVATION VIEW

December 16, 2015

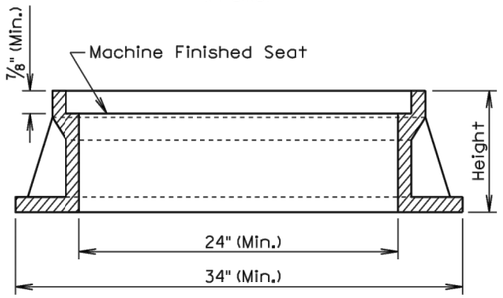
Published Date: 2nd Qtr. 2018	SDDOT	5'X 5' JUNCTION BOX	PLATE NUMBER 671.01
			Sheet 3 of 3



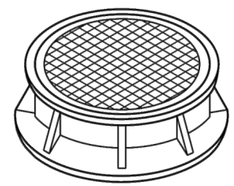
PLAN VIEW
(Frame)



PLAN VIEW
(Lid)



SECTION A-A



ISOMETRIC VIEW

TYPE	HEIGHT (Inches)	MINIMUM WEIGHT (Lb.)
A7	7	400
A8	8	440
A9	9	470
A10	10	480

GENERAL NOTE:

Geometric pattern on top of lid other than that shown shall be approved by the Engineer.

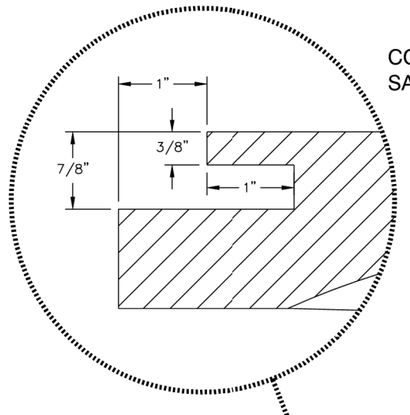
June 26, 2016

Published Date: 2nd Qtr. 2018	SDDOT	TYPE A MANHOLE FRAME AND LID	PLATE NUMBER 671.10
			Sheet 1 of 1

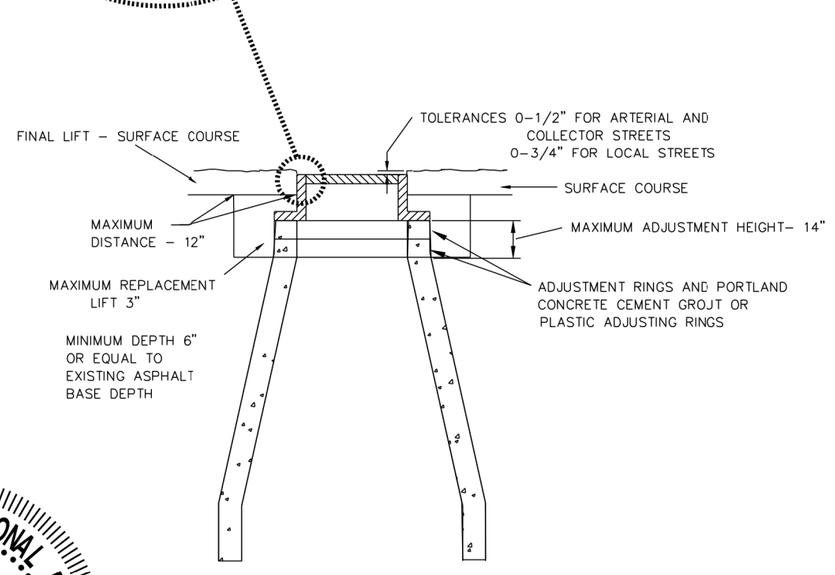
DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	54	56

FILE: 667021 – Details.dwg
PLOTTING DATE: 2018–06–28 INITIALS: GGL
REVISION DATE: **06-28-2018**



CONCEALED PICK HOLE FOR
SANITARY MANHOLE COVERS

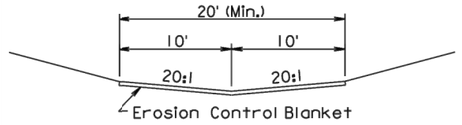


REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9236
GABRIEL G. LABER
7/11/18
SOUTH DAKOTA

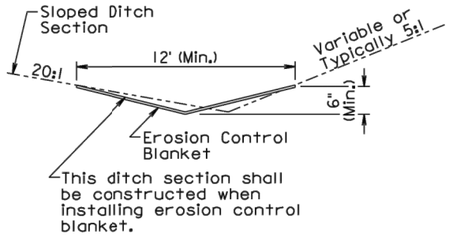
NOTE:
1. ASPHALT CONCRETE – MANHOLE AND CASTING SHALL BE ADJUSTED TO FINAL GRADE PRIOR TO PLACEMENT OF SURFACE COURSE.

2. CONCEALED PICK HOLES AND THE SEAL BETWEEN THE FRAME AND COVER SHALL BE PROTECTED FROM ASPHALT, CONCRETE PAVEMENT, CHIP SEAL AND SOIL. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO PROVIDE A SYSTEM TO PREVENT MATERIAL FROM ENTERING THE CONCEALED PICK HOLE AND FRAME AND COVER SEAL DURING THE WORK.

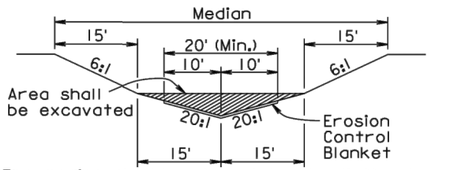
MANHOLE CASTING AND COVER ADJUSTMENT



STANDARD DITCH SECTION

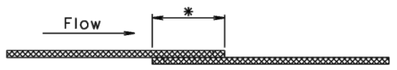


SLOPED DITCH SECTION



The median shall be shaped to the limits shown in this detail where the erosion control blanket will be placed.

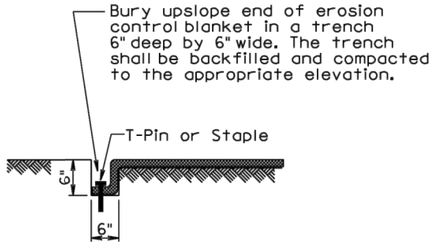
MEDIAN SECTION



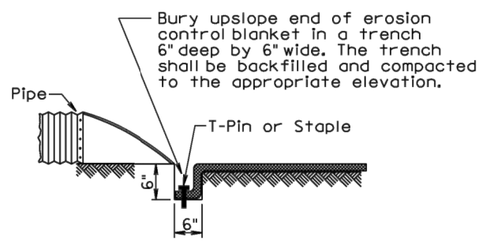
* Use a 4" (Min.) overlap wherever two widths of erosion control blanket are applied side by side.

* Use a 6" (Min.) overlap wherever one roll of erosion control blanket ends and another begins.

OVERLAP DETAIL



TRENCH DETAIL



PIPE END DETAIL

GENERAL NOTES:

Prior to placement of the erosion control blanket, the areas shall be properly prepared, shaped, seeded, and fertilized.

Erosion control blanket shall be unrolled in the direction of the flow of water when placed in ditches and on slopes. The upslope end of the erosion control blanket shall be buried in a trench 6" wide by 6" deep. There shall be at least a 6" overlap wherever one roll of erosion control blanket ends and another begins, with the upslope erosion control blanket placed on top of the downslope erosion control blanket.

The erosion control blanket shall be pinned to the ground according to the manufacturer's installation recommendations.

After the placement of the erosion control blanket, the Contractor shall fine grade along all edges of the blanket to maintain a uniform slope adjacent to the blanket and level any low spots which might prevent uniform and unrestricted flow of side drainage directly onto the erosion control blanket.

All ditch sections shall be shaped when installing the erosion control blanket. All costs for shaping the ditches shall be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".

December 23, 2004

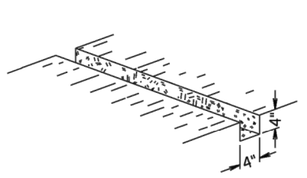
Published Date: 2nd Qtr. 2018	SDDOT	***EROSION CONTROL BLANKET***	***PLATE NUMBER 734.01*** *Sheet 1 of 1*

DETAILS

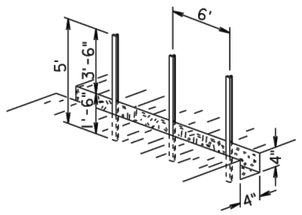
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	55	56

FILE: 667021 – Details.dwg
PLOTTING DATE: 2018-06-28 INTIALS: GGL
REVISION DATE: **06-28-2018**

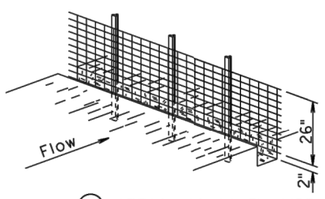
MANUAL LOW FLOW SILT FENCE INSTALLATION



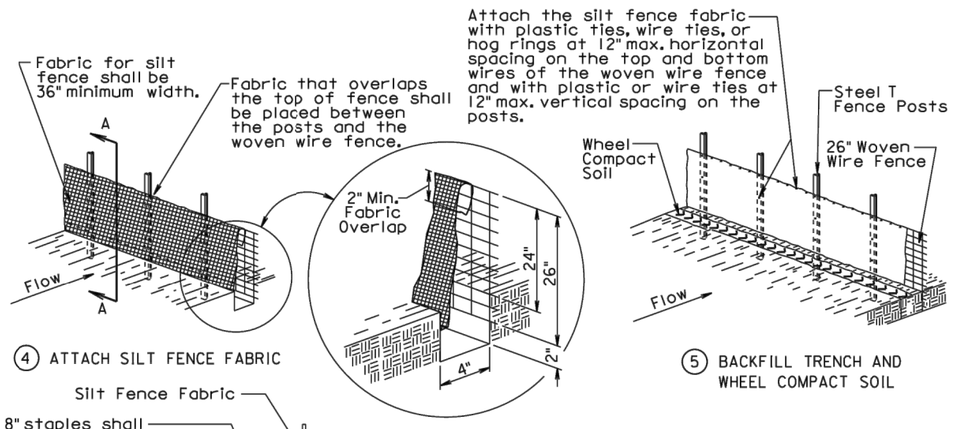
(1) EXCAVATE TRENCH



(2) DRIVE STEEL T FENCE POSTS

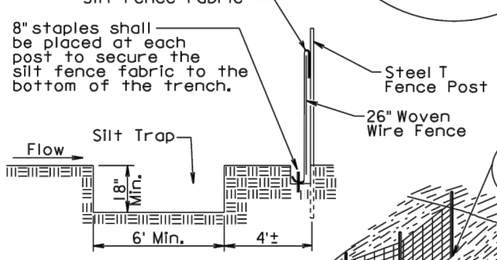


(3) ATTACH 26" WOVEN WIRE FENCE TO POSTS

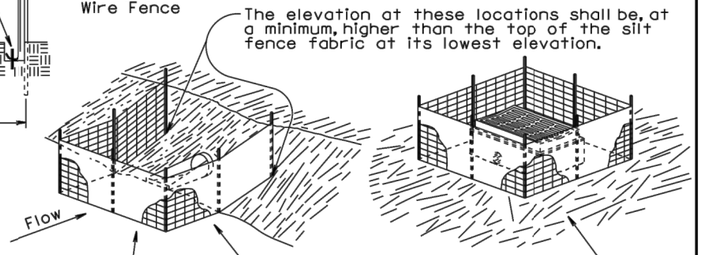


(4) ATTACH SILT FENCE FABRIC

(5) BACKFILL TRENCH AND WHEEL COMPACT SOIL



SECTION A-A



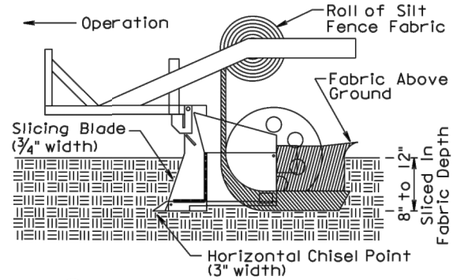
Post spacing shall be 3' for these types of applications of silt fence. All other components of the silt fence shall be the same as shown above.

The silt fence length and width may be adjusted due to a larger pipe, multiple pipe, or other circumstances during construction as determined by the Engineer.

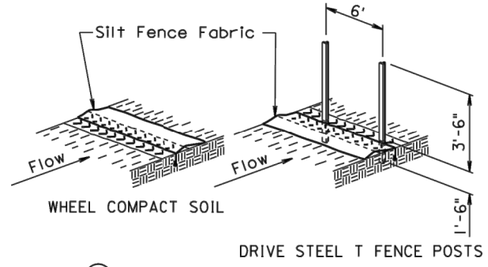
December 23, 2003

Published Date: 2nd Qtr. 2018	SDDOT	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
			Sheet 1 of 2

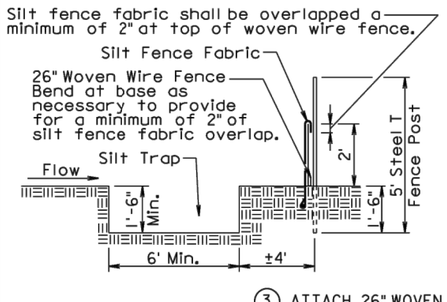
MACHINE SLICED LOW FLOW SILT FENCE INSTALLATION

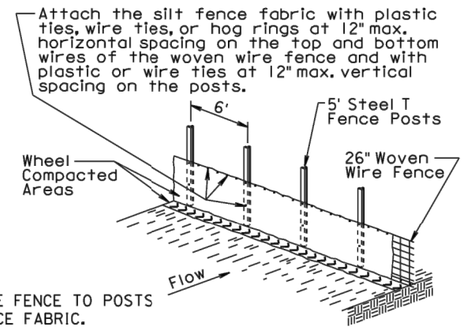


(1) INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.

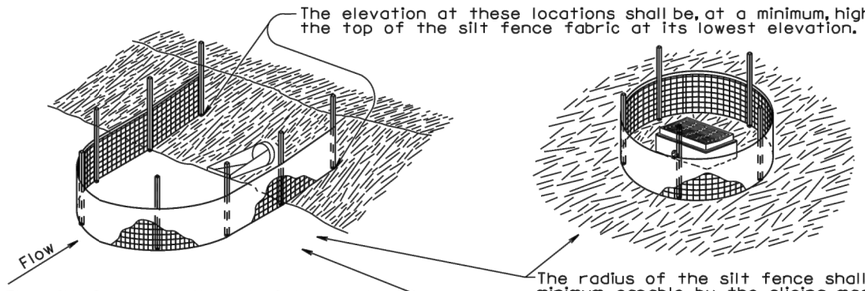


(2) WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.





(3) ATTACH 26" WOVEN WIRE FENCE TO POSTS AND ATTACH SILT FENCE FABRIC.



The silt fence length and width may be adjusted due to a larger pipe, multiple pipe, or other circumstances during construction as determined by the Engineer.

GENERAL NOTES:

A silt trap shall be provided when specified by a plan note. All costs for constructing the silt trap shall be incidental to the contract unit price per cubic yard for "Silt Trap".

If a trench can not be dug or the silt fence fabric can not be sliced in due to the type of earthen material (such as rock), then a row of 30 to 40 pound sandbags butted end to end shall be provided on top of the extra length of silt fence fabric to prevent underflow.

December 23, 2003

Published Date: 2nd Qtr. 2018	SDDOT	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
			Sheet 2 of 2

DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P TAPU(17)	56	56

FILE: 667021 – Details.dwg
PLOTTING DATE: 2018–06–28 INTIALS: GGL
REVISION DATE: 06-28-2018

DEFINITION:

A SEDIMENT FILTER OR AN EXCAVATED IMPOUNDING AREA AROUND A STORM DRAIN DROP INLET OR CURB INLET.

PURPOSES:

TO REDUCE SEDIMENT FROM ENTERING STORM DRAINAGE SYSTEMS PRIOR TO PERMANENT STABILIZATION OF DISTURBED AREAS.

1. SET POSTS.

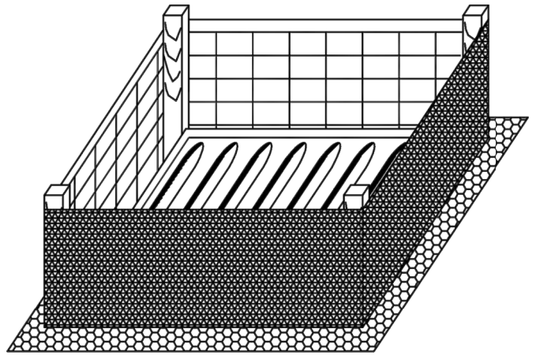
2. EXCAVATE AN 8" X 8" TRENCH UPSLOPE ALONG THE POSTS.

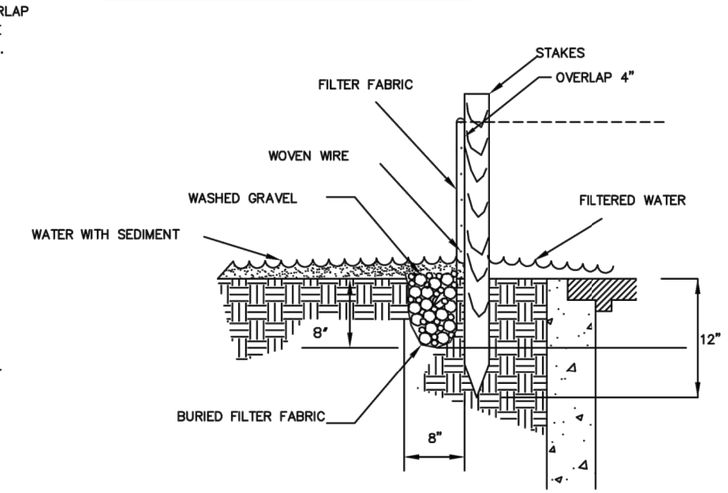
3. ATTACH A SUPPORTING WIRE FENCE TO THE POSTS

4. ATTACH FABRIC SANDWICH 4" FABRIC OVERLAP BETWEEN POSTS AND WIRE AND EXTEND INTO TRENCH.

5. BACK FILL TRENCH. IF ROCK TYPE SOILS ARE ENCOUNTERED, UTILIZE 30 TO 40 LB SANDBAGS BUTTED END TO END TO PREVENT UNDERFLOW.

ATTACH FABRIC WITH HOG RINGS 12" MAXIMUM HORIZONTAL SPACING ON TOP AND BOTTOM OF THE WOVEN WIRE AND WITH STAPLES OR WIRE TIES AT 12" MAXIMUM VERTICAL SPACING ON THE POSTS.



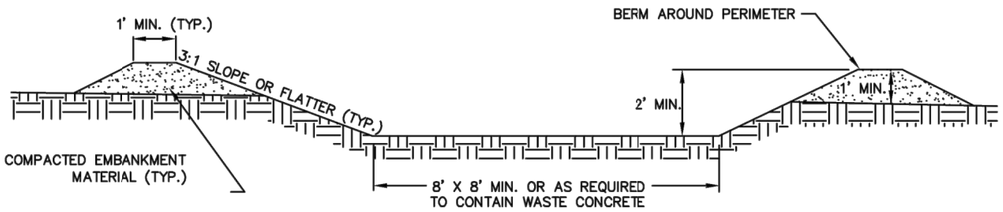


FILTER FABRIC SHALL CONFORM TO SECTION 831 OF THE SPECIFICATIONS.

SILT FENCE DROP INLET
SEDIMENT FILTER

NOTES:

1. CONCRETE WASHOUT FACILITY SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE.
2. A SIGN SHALL BE INSTALLED ADJACENT TO EACH WASHOUT FACILITY TO INFORM CONCRETE EQUIPMENT OPERATORS TO UTILIZE THE CWF.
3. THE CONCRETE WASHOUT FACILITY SHALL BE REPAIRED AND ENLARGED OR CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY FOR WASTED CONCRETE.
4. WHEN CWF ARE NO LONGER REQUIRED FOR THE WORK, THE HARDENED CONCRETE AND MATERIALS USED TO CONSTRUCT THE CWF SHALL BE REMOVED AND DISPOSED OF.
5. WHEN THE CONCRETE WASHOUT FACILITY IS REMOVED, THE HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE SHALL BE BACKFILLED, REPAIRED AND STABILIZED.



CROSS SECTIONAL VIEW

REGISTERED PROFESSIONAL ENGINEER
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7/11/18
SOUTH DAKOTA

CONCRETE WASHOUT FACILITY